

VNguyen

FILE 'HCAPLUS' ENTERED AT 17:05:47 ON 02 DEC 2002

L1 48863 S CAPACITANCE
L2 10110 S SHUNT?
L3 31540 S TRANSDUCE?
L4 153605 S CALCULAT?
L5 501727 S TEMPERATUR?
L6 2101323 S CHANG? OR DELTA
L7 231 S L1 AND L2
L8 833 S L4 AND L5 AND L6
L9 1 S L3 AND L7
L10 2 S L3 AND L8
L11 0 S L7 AND L8
L12 3 S L9 OR L10
L13 90867 S ULTRASON? OR ULTRA()SON? OR ULTRASOUND? OR ULTRA()SOUND?
L14 36011 S IMPEDANCE OR IMPEDENCE
L15 85 S HANDPIECE OR HAND()PIECE
L16 10 S L13 AND L15
L17 0 S L14 AND L15
L18 1144 S L13 AND L14
L19 10 S L16
L20 10 DUP REMOVE L19 (0 DUPLICATES REMOVED)

10/7/1 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO
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07341416 **Image available**
ULTRASONIC SURGERY SYSTEM

PUB. NO.: 2002-209907 [JP 2002209907 A]
PUBLISHED: July 30, 2002 (20020730)
INVENTOR(s): WIENER EITAN T
DONOFRIO WILLIAM T
APPLICANT(s): ETHICON ENDO SURGERY INC
APPL. NO.: 2001-324101 [JP 20011324101]
FILED: October 22, 2001 (20011022)
PRIORITY: 00 693621 [US 2000693621], US (United States of America),
October 20, 2000 (20001020)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an ultrasonic surgery system capable of keeping resonance of a converter even when load and a **temperature** vary to change a resonance frequency.

SOLUTION: This ultrasonic surgery system has a digital control system that is positioned inside a hand piece and supplies ultrasonic driving current to the converter mounted to a scalpel. The digital control system comprises a digital signal processor(DSP), namely a microprocessor, a direct digital synthetic (DSP) circuit, a phase detecting logical technology, a control algorism for finding and keeping a resonance frequency, and a technology for regulating supplied voltage, current, and power. This system can provide a power curve to the load adequate to a specific hand piece, and improve efficiency, and reduce generated heat. A component of the digital system hardly receives an effect to **temperature** change, and can operate in a required frequency region near a desired resonance frequency.

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10/7/2 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO
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07100404 **Image available**
DEBURRING METHOD FOR ULTRASONIC DEVICE

PUB. NO.: 2001-328060 [JP 2001328060 A]
PUBLISHED: November 27, 2001 (20011127)
INVENTOR(s): GARRETT MILTON B
HOUSER KEVIN L
COOK SARAH A
APPLICANT(s): ETHICON ENDO SURGERY INC
APPL. NO.: 2001-103732 [JP 20011103732]
FILED: April 02, 2001 (20010402)
PRIORITY: 00 541371 [US 2000541371], US (United States of America),
March 31, 2000 (20000331)

ABSTRACT

PROBLEM TO BE SOLVED: To provide a deburring method for a high power ultrasonic device.

SOLUTION: The deburring processing for the high power ultrasonic device by this method can be attained by performing a process for connecting the

ultrasonic device to an ultrasonic **transducer** , a process for inserting the ultrasonic device in a polishing medium, a process for actuating the ultrasonic **transducer** , and a process for deburring the ultrasonic device in the polishing medium. An embodiment of this invention uses crushed champagne bottle glass with grain size 24 mesh as a deburring medium. The deburring of an ultrasonic surgery appliance blade can be accomplished without damaging the edge state of the blade by actuating the blade for 5-20 seconds in the medium.

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10/7/3 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014643290 **Image available**
WPI Acc No: 2002-463994/200250

Transducer temperature **determination method for ultrasonic hand piece, involves outputting warning when temperature calculated using shunt capacitance is excessive**

Patent Assignee: ETHICON ENDO-SURGERY INC (ETHI)
Inventor: **DONOFRIO W T ; HOUSER K ; KRAMER K S ; STULEN F B ; WIENER E T**

Number of Countries: 029 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
CA 2359742	A1	20020420	CA 2359742	A	20011017	200250 B
US 20020062132	A1	20020523	US 2000241891	A	20001020	200250
			US 2001975390	A	20011010	
AU 200181516	A	20020502	AU 200181516	A	20011019	200250
EP 1208803	A2	20020529	EP 2001308900	A	20011019	200250

Priority Applications (No Type Date): US 2000241891 P 20001020; US 2001975390 A 20011010

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
CA 2359742	A1	E	42	G08B-021/18	
US 20020062132	A1			A61B-017/32	Provisional application US 2000241891

AU 200181516 A G08B-007/00
EP 1208803 A2 E A61B-017/32

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

Abstract (Basic): CA 2359742 A1

NOVELTY - A warning is output to a user if **temperature** of a **transducer** calculated based on a shunt **capacitance** is excessive.

USE - For determining **temperature** of **transducer** of ultrasonic surgical hand piece e.g. ultrasonic surgical cutting and hemostasis system.

ADVANTAGE - Calculates **capacitance** of a **transducer** without knowing the exact resonance frequency of the **transducer** /blade combination. Measurements are accurate even when **temperature** sensor is not used.

DESCRIPTION OF DRAWING(S) - The figure shows a console for an ultrasonic surgical cutting and hemostasis system.

pp; 42 DwgNo 1/9

Derwent Class: P31; S02; S03; S05; W05

International Patent Class (Main): A61B-017/32; G08B-007/00; G08B-021/18

International Patent Class (Additional): G01K-001/00; G01K-007/34

10/7/4 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

014642086 **Image available**
WPI Acc No: 2002-462790/200249

Gunked and cracked ultrasonically tuned blades detection method for ultrasonic surgical systems, involves obtaining impedance data for blade and displaying message on LCD when impedance data is within acceptable limits

Patent Assignee: ETHICON ENDO-SURGERY INC (ETHI)
Inventor: **DONOFRIO W T** ; FRIEDMAN A L
Number of Countries: 003 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020049551	A1	20020425	US 2000241888	P	20001020	200249 B
			US 2001930104	A	20010814	
CA 2359142	A1	20020420	CA 2359142	A	20011017	200249
AU 200181509	A	20020502	AU 200181509	A	20011019	200249

Priority Applications (No Type Date): US 2000241888 P 20001020; US
2001930104 A 20010814

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020049551	A1		26	G06F-019/00	Provisional application US 2000241888

CA 2359142	A1 E	A61B-017/32
AU 200181509	A	G01N-029/00

Abstract (Basic): US 20020049551 A1

NOVELTY - A drive signal is applied to an ultrasonic blade using an ultrasonic generator. An impedance data is obtained for the blade and compared to determine whether the impedance data is within acceptable limits. If the data is within acceptable limits, a message is then displayed on a liquid crystal display (LCD) of the generator.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- (1) Damping level determination method; and
- (2) Relative dampening level determination method.

USE - For ultrasonic surgical systems using electrical scalpels, lasers for incision and hemostatis of soft tissues by cauterizing tissues and blood vessels.

ADVANTAGE - The cracked, gunked condition of the blade during use in an operation room is determined quickly, easily and accurately, without depending on the type of hand piece/blade, its **temperature** or age of patient.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of ultrasonic generator.

pp; 26 DwgNo 6a/11

Derwent Class: P31; S05; T01; V06

International Patent Class (Main): A61B-017/32; G01N-029/00; G06F-019/00

International Patent Class (Additional): G01H-015/00

10/7/5 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014622920 **Image available**

WPI Acc No: 2002-443624/200247

Bad hand pieces and blade failures detection in ultrasonic surgical system, involves displaying message on LCD, if rate of change of resonance frequency and impedance are higher than normal rate with respect to temperature change

Patent Assignee: ETHICON ENDO-SURGERY INC (ETHI)

Inventor: FRIEDMAN A L; **STULEN F B** ; **WIENER E T** ; **STULEN F**

Number of Countries: 029 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20020049427	A1	20020425	US 2000242273	A	20001020	200247 B
			US 2001864089	A	20010524	
CA 2359141	A1	20020420	CA 2359141	A	20011017	200247
EP 1208804	A2	20020529	EP 2001308935	A	20011019	200247
AU 200181515	A	20020801	AU 200181515	A	20011019	200261

Priority Applications (No Type Date): US 2000242273 P 20001020; US 2001864089 A 20010524

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020049427	A1		11	A61B-017/00	Provisional application US 2000242273

CA 2359141 A1 E A61B-017/32

EP 1208804 A2 E A61B-017/32

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI TR

AU 200181515 A B06B-001/06

Abstract (Basic): US 20020049427 A1

NOVELTY - A diagnostic self test is done in an ultrasonic generator to determine the presence of lock. If the lock is not present, then the rate of change of resonance frequency and impedance are retrieved from memory and compared to determine the fastest rate of change. A message is displayed on a liquid crystal display, if rate of change is higher than normal rate with respect to **temperature** change.

USE - For distinguishing bad hand pieces and failed blades used in ultrasonic surgical system for incision and hemostasis of soft tissue.

ADVANTAGE - The system does not overshoot resonance frequency when the sweep rate is reduced, because the rate of sweep can be changed by changing rate at which the frequency increment is updated.

DESCRIPTION OF DRAWING(S) - The figure shows the ultrasonic surgical cutting and hemostasis system, hand piece and foot switch.

pp; 11 DwgNo 1/4

Derwent Class: P31; P43; S02; S05

International Patent Class (Main): A61B-017/00; A61B-017/32; B06B-001/06

International Patent Class (Additional): G01H-013/00

10/7/6 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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014616520 **Image available**

WPI Acc No: 2002-437224/200247

Ultrasonic surgical system for simultaneous soft tissue dissection and cauterization of blood vessels, produces digital frequency code at frequency representing resonance of hand piece

Patent Assignee: ETHICON ENDO-SURGERY INC (ETHI)

Inventor: **DONOFRIO W T** ; **WEINER E T** ; **WIENER E T**

Number of Countries: 029 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1199047	A2	20020424	EP 2001308901	A	20011019	200247 B
AU 200179483	A	20020502	AU 200179483	A	20011017	200247
CA 2359439	A1	20020420	CA 2359439	A	20011017	200247
JP 2002209907	A	20020730	JP 2001324101	A	20011022	200264

Priority Applications (No Type Date): US 2000693621 A 20001020

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
EP 1199047	A2	E 18	A61B-017/32	
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR				
AU 200179483	A		A61B-017/32	
CA 2359439	A1	E	A61B-017/32	
JP 2002209907	A	57	A61B-018/00	

Abstract (Basic): EP 1199047 A2

NOVELTY - A digital controller (10) receives a digital phase code and a digital impedance code to produce a digital frequency code at a frequency representing resonance of the hand piece (30). A synthesizer converts digital frequency code into an analog signal and applies the signal to a signal generator to maintain the frequency at resonance frequency.

USE - For simultaneous soft tissue dissection and cauterization of large and small blood vessels.

ADVANTAGE - Switch assembly attached to the hand piece allows the surgeon to activate and deactivate the generator to drive the ultrasonic blade. Digitally controlled frequency as well as current set point amplitude loops provide significant flexibility and accuracy. Provides hardware based safety mechanism by which output current in excess of maximum allowed current for each specific power level cannot be delivered into the hand piece **transducer** such that unsafe extra displacement of ultrasonic blade tip is prevented.

DESCRIPTION OF DRAWING(S) - The figure shows a console for an ultrasonic surgical cutting and hemostasis system as well as a hand piece and foot switch.

Digital controller (10)

Hand piece (30)

pp; 18 DwgNo 1/5

Derwent Class: P31; P43; S05; V06

International Patent Class (Main): A61B-017/32; A61B-018/00

International Patent Class (Additional): A61B-017/22; B06B-001/02;

B06B-001/06; H03B-005/30

10/7/7 (Item 5 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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014333008 **Image available**

WPI Acc No: 2002-153711/200220

Langevin ultrasonic transducer assembly for laparoscopic, endoscopic applications, has stud inserted into bore of velocity transformer, with central portion length selected to tune frequency of transducer assembly

Patent Assignee: ETHICON ENDO-SURGERY INC (ETHI)

Inventor: BEAUPRE J M; MADAN A K; **STULEN F B** ; **WIENER E T**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6278218	B1	20010821	US 99292134	A	19990415	200220 B
			US 2000584583	A	20000531	

Priority Applications (No Type Date): US 99292134 A 19990415; US 2000584583 A 20000531

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6278218	B1	10	H02N-002/00	Div ex application US 99292134

Abstract (Basic): US 6278218 B1

NOVELTY - A stud is inserted into the threaded portion (111) of a bore (110) of a velocity transformer. The central portion of the stud is a non-threaded portion. The length of the central non-threaded portion is selected to tune the frequency of the **transducer** assembly.

USE - For laparoscopic, endoscopic surgery for cutting and/or coagulation of organic tissues.

ADVANTAGE - Trimming at the contact surface for tuning the **transducer** is avoided, by using stud of variable non-threaded portions. Tuning of high resonant devices is eased by the acoustic assemblies.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional plan view of the acoustic assembly.

Bore (110)

Threaded portion (111)

pp; 10 DwgNo 3/6

Derwent Class: S05; V06

International Patent Class (Main): H02N-002/00

10/7/8 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013576523 **Image available**

WPI Acc No: 2001-060730/200107

Method for assembling ultrasonic transducers , used in medical field, by selecting from a number of tuning elements, with different dimensions and material properties, to give the required resonant frequency of transducer

Patent Assignee: ETHICON ENDO-SURGERY INC (ETHI); ETHICON ENDO-SURGERY (ETHI)

Inventor: BEAUPRE J M; MADAN A K; **STULEN F B ; WIENER E T**

Number of Countries: 090 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200062688	A1	20001026	WO 2000US5964	A	20000307	200107 B
AU 200036191	A	20001102	AU 200036191	A	20000307	200107
EP 1173100	A1	20020123	EP 2000914856	A	20000307	200214
			WO 2000US5964	A	20000307	

Priority Applications (No Type Date): US 99292441 A 19990415

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
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WO 200062688 A1 E 24 A61B-017/32

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200036191 A A61B-017/32 Based on patent WO 200062688
EP 1173100 A1 E A61B-017/32 Based on patent WO 200062688
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): WO 200062688 A1

NOVELTY - The method involves selecting a at least one piezoelectric element(100) with a central opening, selecting an end-bell and a fore-bell(94). It involves inserting a threaded bolt through the central opening of the piezoelectric element.. The threaded bolt is also inserted through a central opening of an end-bell and into the threaded bore of a fore-bell such that the piezoelectric element is compressed between the end-bell and the fore-bell. It involves selecting a tuning stud(50) from a number of varying masses and threading it into the distal surface of the fore-bell such that the selection of the stud tunes the resonant frequency of the ultrasonic **transducer** (82) to a desired resonant frequency.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for a method of tuning an ultrasonic assembly, method of manufacturing an ultrasonic **transducer** and an ultrasonic **transducer** produced by the above method.

USE - For the safe and effective treatment of many medical conditions, e.g. for cutting, dissecting or cauterizing tissue.

ADVANTAGE - Eliminates the need for trimming of acoustic assemblies as it can account for variations of frequency resonance of individual assemblies.

DESCRIPTION OF DRAWING(S) - Shows a perspective view of an ultrasonic generator with a sectioned plan view of a sandwich type ultrasonic **transducer**

fore-bell (94)
ultrasonic **transducer** (82)
tuning stud (50)
piezoelectric elements (100)
pp; 24 DwgNo 1/6

Derwent Class: P31; S05; V06

International Patent Class (Main): A61B-017/32

10/7/9 (Item 7 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012840379 **Image available**

WPI Acc No: 2000-012211/200001

Fluid characteristics detection procedure in subterranean fluid carrying pipelines

Patent Assignee: COLUMBIA GAS OHIO (COLU-N)

Inventor: BROWN S T; EBERLE A C; HOLDERBAUM G S; PHILIPS D B; **STULEN F B**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5980102	A	19991109	US 94262696	A	19940620	200001 B
			US 96606410	A	19960223	
			US 96766989	A	19961216	

Priority Applications (No Type Date): US 96766989 A 19961216; US 94262696 A 19940620; US 96606410 A 19960223

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5980102	A	28	G01K-013/02	Div ex application US 94262696 CIP of application US 96606410

Div ex patent US 5645348
CIP of patent US 5836693

Abstract (Basic): US 5980102 A

NOVELTY - Three locations are chosen on exterior surface of pipe such that the first and third locations are equally and axially spaced from second location. The second location is continuously heated while simultaneously measuring **temperature** of first and third locations twice. The time period between the two measurement steps is also noted.

DETAILED DESCRIPTION - The difference between **temperatures** measured at first location enables determining of whether fluid is liquid or gas. The difference between **temperatures** secondly measured at first and third location determines if fluid is static. The pressure of fluid is determined by comparing **temperatures** measured at first location and time period between two measurements with specific data from another source.

USE - For judging characteristics of fluid in subterranean fluid carrying pipelines during repair.

ADVANTAGE - By determining the physical characteristics of fluid, right pipeline is ensured. Hence necessary precautions for the safety of public can be taken.

DESCRIPTION OF DRAWING(S) - The figure illustrates pipeline excavation condition.

pp; 28 DwgNo 1/33

Derwent Class: S03

International Patent Class (Main): G01K-013/02

International Patent Class (Additional): G01N-007/00

10/7/10 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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012217065 **Image available**

WPI Acc No: 1999-023171/199902

Determining apparatus for physical characteristics of fluid in pipeline - has two sets of three heaters attached to surface of pipe on opposite sides of heater and pattern of heat transfer or temperature pattern is used to evaluate contents of pipeline

Patent Assignee: COLUMBIA GAS OHIO INC (COLU-N)

Inventor: BROWN S T; EBERLE A C; HOLDERBAUM G S; PHILIPS D B; **STULEN F B**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5836693	A	19981117	US 94262696	A	19940620	199902 B
			US 96606410	A	19960223	

Priority Applications (No Type Date): US 94262696 A 19940620; US 96606410 A 19960223

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5836693	A	16	G01N-025/00	Div ex application US 94262696 Div ex patent US 5645348

Abstract (Basic): US 5836693 A

The apparatus has a pipe containing an unknown fluid, which may be a static or flowing liquid or gas, of unknown composition and unknown pressure. A heater (12) is attached to the external surface of the pipe within a housing (34). A source of electrical energy (30) is connected to the heater through a controller (28) for controlling the energy to it.

A number of **temperature** sensors (12,14,16,18,20,22,34) are attached to the surface of the pipe inside the housing and are connected to a screen of a data display system outside the housing to which displays **temperatures** from the sensors. The **temperature** sensors include two sets of three each in a direction transverse to the heater and in an opposite direction from it to the other set. Each set has one sensor on the top, one about half way down the side and one on the bottom of the pipe. A data acquisition system and computer (36) is used to evaluate the pattern of heat transfer or the **temperature** pattern to evaluate contents of pipeline.

USE - For public utility repair crews excavating pipelines.

ADVANTAGE - Ensures that excavation crew is operating on correct pipeline so necessary precautions can be made for safety.

Dwg.1/15

Derwent Class: S02; S03

International Patent Class (Main): G01N-025/00

International Patent Class (Additional): G01N-001/68; G01N-013/02

10/7/11 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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011384780 **Image available**

WPI Acc No: 1997-362687/199733

Pipeline pressure measuring method - involves continuously calculating rate of rise of temperature differences between top and bottom and rate of temperature rise at second location to determine peak rate of rise of temperature difference between top and bottom

Patent Assignee: COLUMBIA GAS OHIO INC (COLU-N)

Inventor: BROWN S T; EBERLE A C; HOLDERBAUM G S; PHILIPS D B; **STULEN F B**

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5645348	A	19970708	US 94262696	A	19940620	199733 B

Priority Applications (No Type Date): US 94262696 A 19940620

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5645348	A	16	G01N-025/00	

Abstract (Basic): US 5645348 A

The process involves continuously applying heat to an exterior surface of a pipe at a first location. the **temperature** of the exterior surface of the pipe on one of the sides is measured at a second location spaced more than 2 inches and less than 25 inches from where the heat is applied. The **temperature** at the second location is again measured after a period of time from beginning to apply the heat.

The measured **temperatures** at the second location are compared to determine the fluid in the pipe to be a gas. The **temperature** differences between the top and bottom are continuously calculated. The rate of rise of the **temperature** differences between the top and bottom and the rate of **temperature** rise at the second location are continuously calculated to determine a peak rate of rise of the **temperature** difference between the top and bottom and a peak rate of **temperature** rise at the second location. The calculated peak rates of rise with data from another source are compared to make a determination of the pressure of the gas in the pipe.

ADVANTAGE - Determines physical characteristics of fluid inside

pipeline without breaching surface of pipeline.

Dwg.1/15

Derwent Class: S02; S03; T01

International Patent Class (Main): G01N-025/00

International Patent Class (Additional): G01F-001/68; G01K-013/02;
G01L-007/00

10/7/12 (Item 10 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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007927414

WPI Acc No: 1989-192526/198926

**Acoustic detector for states of boiling in steam, chemicals or cooking -
uses pulses of sound to indicate boiling sparse simmering, continual full
boiling**

Patent Assignee: GAS RES INST (GASR-N)

Inventor: PAPE D B; **STULEN F B** ; WILLIAMS W J

Number of Countries: 017 Number of Patents: 013

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 8905112	A	19890615	WO 88US4180	A	19881122	198926	B
AU 8932880	A	19890705				198937	
US 4869233	A	19890926	US 87126897	A	19871130	198948	
NO 9002366	A	19900813				199038	
EP 390877	A	19901010	EP 89903546	A	19881122	199041	
DK 9001340	A	19900530				199109	
JP 4503397	W	19920618	WO 88US4180	A	19881122	199231	
			JP 89503263	A	19881122		
NO 173155	B	19930726	WO 88US4180	A	19881122	199335	
			NO 902366	A	19900529		
CA 1321823	C	19930831	CA 584047	A	19881124	199341	
EP 390877	A4	19911009	EP 89903546	A	19890000	199519	
EP 390877	B1	19950823	WO 88US4180	A	19881122	199538	
			EP 89903546	A	19881122		
DE 3854353	G	19950928	DE 3854353	A	19881122	199544	
			WO 88US4180	A	19881122		
			EP 89903546	A	19881122		
DK 172170	B	19971208	WO 88US4180	A	19881122	199805	
			DK 901340	A	19900530		

Priority Applications (No Type Date): US 87126897 A 19871130

Cited Patents: GB 2143053; JP 58160738; US 2757869; US 4140021; US 4465228;

US 4508261; US 4622202; DE 3146638; JP 160738

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 8905112 A E 25

Designated States (National): AU DK JP NO

Designated States (Regional): AT BE CH DE FR GB IT LU NL SE

US 4869233 A 9

EP 390877 A

Designated States (Regional): AT BE CH DE FR GB IT LI LU NL SE

JP 4503397 W F24H-001/10 Based on patent WO 8905112

NO 173155 B G05D-023/00 Previous Publ. patent NO 9002366

EP 390877 B1 E 16 A47J-027/62 Based on patent WO 8905112

Designated States (Regional): AT BE CH DE FR GB IT LI LU NL SE

DE 3854353 G A47J-027/62 Based on patent EP 390877

Based on patent WO 8905112

DK 172170 B G05D-023/00 Previous Publ. patent DK 9001340

CA 1321823 C A47J-027/62

Abstract (Basic): WO 8905112 A

Apparatus for sensing the state of boiling in a liquid, which can be, for instance, water for steam, chemical plant or cooking. There are three states to be distinguished, the no boil, then subcooled boiling, usually called simmering, where the bubbles do not reach the surface, and finally full, or rolling boiling where the bubbles rise to the surface of the liquid. These states cannot be distinguished by pressure and **temperature**.

This invention is an acoustic detector, in which the sounds are led along an acoustic waveguide, picked up by a microphone, high pass filtered and amplified. The resulting signal is limited and converted to a square wave by a fifty microsecond timer. This triggers a one-second timer. If neither timer is on the condition is no boil. If the one-second timer is on the process is simmering, and if the fifty micro-second timer is on alone it is full boil.

ADVANTAGE - Detection of boiling condition which is difficult by other means

Abstract (Equivalent): EP 390877 B

In combination with a vessel (14) containing a liquid (16) that is expected to boil where the condition of boiling is desired to be known and monitored, apparatus comprising; (a) **transducer** means (22) cooperating with the vessel (14) and producing electrical signals indicative of acoustic events occurring within the liquid (16) contained in the vessel (14); and (b) circuit means (24-48) for receiving the **transducer** means electrical signals and converting these electrical signals to output control signals indicative of the boiling of the liquid (16), characterised in that the electrical signals produced by the **transducer** means (22) are correlated to individual random acoustic events occurring within the liquid (16) contained in the vessel (14), and in that the circuit means (24-48) is arranged to identify groups of acoustic events from bursts of signal activity which correspond directly to occurrences of individual acoustic events, to determine the rate of such occurrences of individual acoustic events and to generate one of a plurality of differing output signals, these differing output signals being generated by the circuit means (24-48) in response to different detected degrees of individual random acoustic events occurring in the liquid (16) contained in the vessel (14).

Dwg.1/4

Abstract (Equivalent): US 4869233 A

The boiling detection apparatus comprises a heater (12) which warms a container (14) containing the liquid (16) to be used. The heating unit is responsive to control signals to vary the rate of heating of the container. An acoustic emulsion **transducer** (22) produces an electrical signal that is related to individual random acoustic events, occurrence in the liquid.

A circuit receives the signal, and identifies groups of acoustic events from bursts of signal activity. The rate of event occurrence is determined, and classified into one of many control signal. The signals are transmitted to the heating unit, and control the rate of heating.

USE/ADVANTAGE - In industries e.g. chemical processing electric power generation, food preparation etc. Detects boiling independent of **temperature**.

Derwent Class: P28; Q74; T06; X27

International Patent Class (Main): A47J-027/62; F24H-001/10; G05D-023/00

International Patent Class (Additional): A47J-027/00; F24C-007/02;

F24H-001/00; G01H-017/00; G01K-011/22

DIALOG(R)File 350:Derwent WPIX
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003515471

WPI Acc No: 1982-63453E/198230

Acoustic degasification of pressurised liquids. - by vibrating liq. and dissolved gas in hollow chamber using acoustic energy

Patent Assignee: BATTELLE DEV CORP (BATT)

Inventor: FAULKNER L; STULEN F B

Number of Countries: 015 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4339247	A	19820713				198230 B
WO 8203795	A	19821111				198246
NO 8204339	A	19830221				198314
EP 77352	A	19830427	EP 82901243	A	19820312	198318
JP 58500601	W	19830421				198322
CA 1168992	A	19840612				198428
EP 77352	B	19880601				198822
DE 3278557	G	19880707				198828

Priority Applications (No Type Date): US 81257800 A 19810427

Cited Patents: GB 953826; SU 553991; US 2376221; US 2766881; US 3076544; US 3200567; US 3229448; US 3761732; 1.Jnl.Ref; FR 2221165; US 3151958; US 3266631; US 4168295

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4339247	A		9		
WO 8203795	A	E			
				Designated States (National): AU JP NO	
				Designated States (Regional): AT BE CH DE FR GB LU NL SE	
EP 77352	A	E			
				Designated States (Regional): AT BE CH DE FR GB LI NL SE	
EP 77352	B	E			
				Designated States (Regional): AT BE CH DE FR GB LI NL SE	

Abstract (Basic): US 4339247 A

A liq. contg. a dissolved gas is introduced into a hollow chamber having at least one acoustic **transducer** attached to its outer surface at an antinodal point. The **transducer** is tuned to be in resonance with the chamber and a **transducer** power supply.

The acoustic energy is focussed so that peak intensity occurs near the centre of the hollow chamber. The hollow chamber is vibrated by means of acoustic energy to cause bubbles of dissolved gas to form and grow in the liq. and migrate to the liq. surface.

Acoustic degasification is used sepg. dissolved gases from hydro-pressured or geopressured liqs. e.g. removing dissolved hydrocarbons from a water or brine soln. and degassing vegetable oils, viscous fluids, hydraulic fluids, molten plastic, molten glass, molten steel and photographic chemicals

Abstract (Equivalent): EP 77352 B

A method for separating a gas from a liquid in which it is dissolved according to which bubbles of at least one dissolved gas are formed and grown in the liquid by the effect of acoustic energy provided by acoustic **transducers** which cause the wall of a cylindrical body to which they are attached to vibrate, comprising introducing a liquid containing at least one dissolved gas into said body, tuning each acoustic **transducer** to become in resonance with the body containing the liquid as well as with a **transducer** power supply, focusing the acoustic energy from each acoustic **transducer** with a

peak intensity occurring in the portion of the liquid introduced in said cylindrical body which is near the axis of this cylindrical body, thereby avoiding cavitation damage to the inside surface of this cylindrical body, characterized in providing said cylindrical body with at least one pair of acoustic **transducers** attached thereto at an antinodal point in a cross-section perpendicular to the axis of said cylindrical body and diametrically opposed with respect to the circumference of said section. (10pp)

Derwent Class: A31; H01; J01; M24; X25

International Patent Class (Additional): B01D-019/00; B01D-051/08

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14/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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013956146 **Image available**
WPI Acc No: 2001-440360/200147

Single-phase unidirectional surface acoustic wave transducer for use in ultra and very high frequency ranges, comprises two bidirectional surface acoustic wave transducers having fingers with specified spacing

Patent Assignee: CTS CORP (CTSC)
Inventor: BHATTACHARJEE K K; PUTTAGUNTA S; SUDHAKAR P
Number of Countries: 024 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6242844	B1	20010605	US 99473392	A	19991228	200147 B
WO 200148916	A1	20010705	WO 2000US34370	A	20001219	200147

Priority Applications (No Type Date): US 99473392 A 19991228

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6242844	B1	7	H01L-041/08	
WO 200148916	A1 E		H03H-009/145	

Designated States (National): CN IL JP KR

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
MC NL PT SE TR

Abstract (Basic): US 6242844 B1

NOVELTY - Single-phase unidirectional surface acoustic wave (SAW) **transducer** comprises a pair of bidirectional **transducers** having fingers with selected spacing. The first SAW **transducer** is connected to a resonant load, and the second is connected to single-phase drive source. The fingers of the second **transducer** have a specified lateral offset with respect to the first.

DETAILED DESCRIPTION - Single-phase unidirectional surface acoustic wave (SAW) **transducer** comprises support structure (12), resonant load (44), single-phase drive source (42), piezoelectric material (14), and two SAW **transducers** (18,20) having fingers (26,28,30,32,34,36,38,40) with selected spacing. The first **transducer** (18) is connected to the resonant load to act as a reflecting **transducer** to cancel out waves traveling in one direction, and the second **transducer** (20) is connected to the single-phase drive source. The fingers of the second **transducer** have lateral offset of $(n\lambda + (\lambda \text{ one quarter}))$ with respect to the first **transducer**, where n is 0 or an integer. The piezoelectric material is contacting with the two **transducers**.

USE - Useful in ultra high frequency (UHF) and very high frequency (VHF) ranges as **impedance** elements, resonators, and bandpass filters.

ADVANTAGE - The **transducer** has excellent unidirectionality over a large fractional bandwidth and can ensure a ripple free passband. The **transducer** requires only single tuning and matching circuit. The crossovers between meandering ground and bus bars of the **transducers** reduce ohmic losses.

DESCRIPTION OF DRAWING(S) - The drawing shows a perspective view of the inventive **transducer**.

support structure (12)
piezoelectric material (14)
ground plane (16)
transducers (18, 20)
bus bar (22, 24)
fingers (26, 28, 30, 32, 34, 36, 38, 40)
single-phase drive source (42)

resonant load (44)
pp; 7 DwgNo 1/5
Derwent Class: L03; U14; U25; V06
International Patent Class (Main): H01L-041/08; H03H-009/145

14/7/2 (Item 2 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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013534307

WPI Acc No: 2001-018513/200103

Detecting the presence of an enzyme, comprising contacting the sample with a substrate which is least partially covered with an enzymatically biodegradable polymer and measuring any signal produced

Patent Assignee: CAMBRIDGE LIFE SCI PLC (CAMB-N)

Inventor: KRAUSE S; SUMNER C

Number of Countries: 020 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2350677	A	20001206	GB 9913051	A	19990604	200103 B
WO 200075360	A2	20001214	WO 2000EP4855	A	20000527	200103
EP 1185688	A2	20020313	EP 2000936818	A	20000527	200225
			WO 2000EP4855	A	20000527	

Priority Applications (No Type Date): GB 9913051 A 19990604

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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GB 2350677	A	22	C12Q-001/00		
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WO 200075360	A2 E		C12Q-001/00		
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Designated States (National): US

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

EP 1185688	A2 E		C12Q-001/34	Based on patent WO 200075360	
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Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Abstract (Basic): GB 2350677 A

NOVELTY - A method for detecting the presence of an enzyme comprises:

(1) contacting the sample with a substrate, at least part of which is covered by a layer of biodegradable polymer which is degraded by the enzyme to produce a signal; and

(2) measuring any signal produced.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for an assay, comprising:

(A) contacting a sample which may contain a specific analyte with a substrate containing binding sites for the analyte in the presence of a conjugate of the analyte and an enzyme label; and

(B) detecting the presence of unbound conjugate as above.

USE - For detecting the presence of an enzyme in a biological or aqueous sample, particularly a protease, dextranase, pepsin or lipase (claimed).

ADVANTAGE - Does not require a mediator or washing off of excess enzyme label and is more oxygen stable than prior art systems.

pp; 22 DwgNo 0/5

Derwent Class: A89; B04; D16

International Patent Class (Main): C12Q-001/00; C12Q-001/34

International Patent Class (Additional): C12Q-001/37; C12Q-001/40;

C12Q-001/44

14/7/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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009819765 **Image available**

WPI Acc No: 1994-099621/199412

Piezo crystal temp. transducer for monitoring temp. - has switch connected between collector of transistor and inductance winding having tap in with capacitor of series LC-circuit is connected to transistor collector via phasing capacitor

Patent Assignee: KHARK AVIATION INST (KHAV); MACH CONS TECHN INST (MACH-R)

Inventor: LEONOV A A; MOSKALEV V S; SOLODOVNIK V F

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1793277	A1	19930207	SU 4943815	A	19910607	199412 B

Priority Applications (No Type Date): SU 4943815 A 19910607

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1793277	A1	6	G01K-007/32	

Abstract (Basic): SU 1793277 A

The **transducer** comprises an amplifier (1) based on a transistor (2) and two phasing capacitors (3, 4), a multi-mode crystal resonator (5), a series LC-circuit (6) and a switch (7). The amplifier is connected according to common collector mode. The first phasing capacitor is connected between the base and emitter of the transistor. The multi-mode temp. sensitive crystal resonator is connected between the base and collector of the transistor.

The parameters of the reactive elements are chosen from the condition $CLC = 3C4 - 3(16\pi(f_{315} - f_{311})2L)$ where f_{311} and f_{315} are harmonic and nonharmonic overtones of the resonator, CLC and L are **capacitance** and inductance of LC circuit, $C4$ is **capacitance** of second phasing capacitor (4). Max. permissible **impedance** of closed switch RKL at most $2\pi f_p L/10$ where $f_p = f_{315} - f_{311}$ = frequency of resonance oscillation.

ADVANTAGE - Capable of multimode and single frequency oscillation. Bul.5/7.2.93.

Dwg.1/4

Derwent Class: S03; V06

International Patent Class (Main): G01K-007/32

14/7/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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009737401 **Image available**

WPI Acc No: 1994-017252/199403

Capacitive pressure sensor - thermally couples series input compensation capacitor to transducer capacitor in feedback path of inverting amplifier, for compensation of temp. dependence of transducer capacitor

Patent Assignee: VDO SCHINDLING AG ADOLF (VDOT)

Inventor: KERN W

Number of Countries: 003 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
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DE 4222930	A1	19940113	DE 4222930	A	19920711	199403	B
EP 578906	A2	19940119	EP 93100544	A	19930115	199403	
EP 578906	A3	19940608	EP 93100544	A	19930115	199526	

Priority Applications (No Type Date): DE 4222930 A 19920711

Cited Patents: DE 4042335; EP 361590; EP 438634; EP 528551; GB 1580335; GB 2036982; US 4187459; US 4656871; US 4918376; US 5178015

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4222930	A1		7	G01R-027/26	
EP 578906	A2	G	7	G01R-027/26	

Designated States (Regional): DE FR GB

EP 578906	A3			G01R-027/26	
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Abstract (Basic): DE 4222930 A

The output of the amplifier (4) is connected with its inverting input across the capacitor (2) and an evaluation circuit (5) is connected at the output of the amplifier (4).

A further capacitor (1) serves as a compensation capacitor and is thermally coupled with the first capacitor (2). The AC voltage waveform is rectangular.

ADVANTAGE - Derives voltage which is proportional to physical value being measured, esp. pressure of liquid or other medium.

Suppresses parasitic **capacitance** between leads of **transducer** capacitor and ground, to keep voltage at amplifier input at constant voltage, reduce charging of **transducer** capacitor, and prevents influence on low output **impedance** on amplifier.

Dwg.2/4

Derwent Class: S01; S02

International Patent Class (Main): G01R-027/26

International Patent Class (Additional): G01L-009/12

14/7/5 (Item 5, from file: 350)

DIALOG(R) File 350: Derwent WPIX

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009173782 **Image available**

WPI Acc No: 1992-301216/199237

Temp. compensation for inductive and capacitive transducers for distance measurement - using control signal derived from input parameters to influence evaluation electronics and minimise temp. dependency

Patent Assignee: PLANKL H (PLAN-I); THIESSEN R (THIE-I)

Inventor: PLANKL H; THIESSEN R

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4105642	A	19920903	DE 4105642	A	19910222	199237 B
DE 4105642	C2	19930909	DE 4105642	A	19910222	199336

Priority Applications (No Type Date): DE 4105642 A 19910222

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4105642	A		8	G01R-027/02	
DE 4105642	C2		8	G01R-027/02	

Abstract (Basic): DE 4105642 A

A **transducer** (A) with a complex **impedance**, capacitive or inductive, produces one or more output signals (S) from which an evaluation device (AE) produces an output signal (AS) corresp. to a

measurement parameter.

A control signal is produced from one of two input parameters, from their amplitude ratio or their phase relationship. The control signal influences the evaluation electronics to minimise the temp. dependency of the output signal.

ADVANTAGE - Can work under rough operating conditions and over wide temp. range. No additional temp. sensitive component needed to be fixed to pick-up. Oscillator does not need to be re-adjusted.

Dwg.1/4

Abstract (Equivalent): DE 4105642 C

A measurement value pick-up (A) is fed by an oscillator (O), providing a.c. voltage (U) and current (I) inputs and supplies several signals (S) which are evaluated (AE) to form measured values. A control unit (SE) forms a control signal (ST) from one of the inputs, e.g. voltage, current or phases or amplitude ratio, and supplies it to the evaluation circuit (AE) in order to minimise the temp. dependence of the output signal.

USE/ADVANTAGE - E.g. for differential inductor or transformer (LVDT). Does not require additional temp. sensitive components in meter, and regulation of oscillator.

Dwg.1/4

Derwent Class: S01; S02

International Patent Class (Main): G01R-027/02

International Patent Class (Additional): G01D-003/04; G01D-005/14;
G01R-019/32; G01R-025/00; H03D-003/02

14/7/6 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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007864580

WPI Acc No: 1989-129692/198917

Impedance discrimination circuit for capacitive transducer - measures e.g. temp. or force related to impedance variation using feedback and reference impedances

Patent Assignee: KO W (KOWW-I)

Inventor: KO W H; YEH G J

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4820971	A	19890411	US 86868781	A	19860529	198917 B

Priority Applications (No Type Date): US 86868781 A 19860529

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 4820971	A	10		

Abstract (Basic): US 4820971 A

The **impedance** discrimination circuit has a condition sensing **impedance** device whose **impedance** varies in accordance with the sensed condition. A reference **impedance** device has a fixed **impedance** which is unaffected by the sensed condition the reference **impedance** device being connected in parallel with the condition sensing **impedance** device. At least one electrical energy source operatively connected with the condition sensing and reference impedances generates a sensed condition and reference **impedance** difference signal.

The signal varies in accordance with a difference between the condition sensing and reference impedances. A feedback signal circuit generates a feedback signal which varies in accordance with an output

signal and a feedback **impedance** . A difference between the feedback signal and the sensed condition and reference **impedance** difference signal is converted into the output signal such that the signal is proportional to the feedback **impedance** .

ADVANTAGE - Sensitivity and null point can be programmed and adjusted independently, high signal level, high resolution.

1/6

Derwent Class: S02; S03

International Patent Class (Additional): G01H-011/00

14/7/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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007237554

WPI Acc No: 1987-234562/198733

Capacitive displacement transducer e.g. for flow rate detection - has 2 capacitors with 2 electrodes opposite movable electrode having capacitances **changing differentially in response to displacement**

Patent Assignee: YOKOGAWA HOKUSHIN ELECTRIC CO (YOKG)

Inventor: AZEGAMI T; HIRATA T; KATAYAMA M; KIMURA A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4683754	A	19870804	US 86857045	A	19860429	198733 B

Priority Applications (No Type Date): JP 8592889 A 19850430

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 4683754	A	36		

Abstract (Basic): US 4683754 A

The displacement **transducer** has the oscillation frequency of a self-excited oscillator circuit including a pair of differential capacitors formed with a movable electrode placed between two outer electrodes and counted by a counter. The output level of the counter is reversed each time a certain count is attained to cause the differential **capacitances** to be switched alternatively. This makes the respective reversal periods identical. The application voltage to be applied to the differential capacitors is controlled by an integrator, and a voltage relating to the output of the integrator is applied through a fixed **impedance** to the movable electrode, thereby eliminating fixed **capacitances** formed across the difference capacitors.

A voltage is also generated by dividing and averaging the output level of the counter by use of a certain pulse duration of a monostable circuit operating in synchronism with a counter, to compensate for static pressure changes. A **temperature** sensing element is included in a converting section to perform **temperature** correction.

USE/ADVANTAGE - Pressure detection. Increased reliability, efficiency and reduced size.

5/37

Derwent Class: S02

International Patent Class (Additional): G01L-009/12; G01L-019/04

14/7/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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004255559

WPI Acc No: 1985-082437/198514

**Voltage signal conversion circuit providing proportional output signal -
uses conversion impedance circuit using thin-film resistors for
capacitive voltage output**

Patent Assignee: BBC BROWN BOVERI & CIE AG (BROV)

Inventor: MASCHEK M; MASTNER G

Number of Countries: 008 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 135759	A	19850403	EP 84109467	A	19840809	198514 B
JP 60089106	A	19850520	JP 84195894	A	19840920	198526
CA 1214229	A	19861118				198651
US 4754224	A	19880628	US 878160	A	19870129	198828
EP 135759	B	19880720				198829
DE 3472871	G	19880825				198835

Priority Applications (No Type Date): CH 835152 A 19830922

Cited Patents: 3.Jnl.Ref; A3...8524; DE 2650583; FR 2092641; GB 1277953; JP 52144250; JP 57017214; No-SR.Pub

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
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EP 135759	A	G 19		
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Designated States (Regional): CH DE FR LI SE

EP 135759	B	G		
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Designated States (Regional): CH DE FR LI SE

Abstract (Basic): EP 135759 A

The circuit uses a conversion **impedance** to convert an input voltage in a given frequency range into a proportional output signal. The conversion **impedance** is provided by two similar impedances connected in parallel arms of a bridge circuit supplied with a control voltage via a voltage source, operating in a frequency range which differs from the input voltage frequency range.

Pref. the bridge circuit employs an operational amplifier, thin-film resistors and a variable balancing resistor comprising a further thin film resistor in series with a FET controlled by an integrator.

ADVANTAGE - Relatively low-cost conversion **impedance** with good precision and stability.

0/2

Abstract (Equivalent): EP 135759 B

Circuit arrangement for converting an input voltage located within a predetermined operating frequency range into a proportional output voltage having the following features: it contains an amplifier circuit with an operational amplifier (2) which exhibits an output which is connected to the output of the circuit arrangement and which is connected via a feedback resistance (3) to its inverting input and in which a conversion **impedance** (4,5) between the said input and the input of the circuit arrangement is provided as input resistance; the conversion **impedance** consists of two resistances (4,5) arranged in two mutually parallel branches, a first **capacitance** (17 and 18, respectively) is arranged in series with the respective branch resistance (4 and 5 respectively) in at least one of the two branches, in such a manner that the two branch resistances (4,5) are connected in parallel for signals within the operating frequency range; the two branch resistances (4,5), on the other hand, are connected in series into one branch of a bridge circuit supplied by a direct-voltage source (16); means (23,15,13 and 32, respectively) are provided by means of

which the conversion factor of the circuit arrangement is always corrected, in dependence on the state of calibration of the bridge circuit, in such a manner, that it remains constant in spite of a change of the resistance value of the branch resistances (4,5) for example due to ageing phenomena or **temperature** influences. (10pp)

Abstract (Equivalent): US 4754224 A

The converter, including a converting resistance which is followed by operational amplifier having a feedback resistance. For the purpose of stabilising the gain of the circuit arrangement w.r.t. changes in the converting resistance, the latter is formed by connecting two branch resistances in parallel with each other. The branch resistances are series-connected in a bridge circuit to which a direct voltage is supplied from a voltage source. The bridge circuit also includes an operational amplifier and high-quality film resistors and a variable balancing resistance which includes, in series, another film resistor and a field effect transistor. An integrator automatically balances the bridge circuit by controlling the field effect transistor.

The feedback resistance of the operational amplifier contains, in series, a film resistor which corresponds to the film resistor in the balancing resistance and a field effect transistor which is matched to the field effect transistor (13) in the balancing resistance. The field effect transistors are controlled in parallel by the integrator.

USE/ADVANTAGE - For processing output signal of capacitive voltage **transducer** . Accuracy and long-term stability. (8pp)h

Derwent Class: U24; U25

International Patent Class (Additional): G01R-019/00; H03B-028/00;

H03F-001/08; H03F-003/00; H03G-003/20; H03H-011/24; H03K-005/00

14/7/9 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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004197090

WPI Acc No: 1985-023970/198504

Pulse-frequency velocity and temp transducer - uses variable capacitor, inductance coil, reference voltage source and resistors to form measuring bridge with thermistor

Patent Assignee: ANTONOV V I (ANTO-I)

Inventor: NUDELMAN L M; TRUSHIN I M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1095384	A	19840530	SU 3515511	A	19821126	198504 B

Priority Applications (No Type Date): SU 3515511 A 19821126

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1095384	A	4		

Abstract (Basic): SU 1095384 A

The measuring bridge formed by resistors (6-8), thermistor (3) and coil (5) with variable capacitor (4) acts, in conjunction with variable resistor (9) and pulse generator (1), to convert medium velocity and **temperature** into frequency. With variation in velocity and **temperature** resistance of thermistor (3) is altered destroying balance of bridge and altering **impedance** from arm comprising coil (5) and variable capacitor (4) due to change of potential at capacitor (4) anode. Time delay operates on pulse generator (1) deviating sequence of pulses at its output. Transistor (13) and resistor (17) in pulse

generator (1) act as source of stabilised current for differential amplifier comprising transistors (10&11) and resistors (15&16).

Output signal from emitter follower formed by transistor (12) is fed along positive feedback circuit to base of transistor (10) to act as cut-off voltage for generator. It is also fed along negative feedback circuit through resistor (18) to base of transistor (11) and to capacitor (14) so that transistor (12) emitter and transistor (10) base are always at same voltage. Resistor (19) is load resistor for emitter follower (transistor 12). First output bus of reference voltage source (2) attaches bridge diagonal to thermostable potential giving wide range of control over **capacitance** of variable capacitor (4). **Capacitance** of capacitor (14) is much greater than that of variable capacitor (4) and is used to limit, through constant voltage component, imbalance at resistor (8).

USE/ADVANTAGE - Increased sensitivity of **transducer** converting velocity and **temperature** of a medium. The **transducer** can be used in digital devices and measurement systems for monitoring thermal conditions in computers and for tracking and monitoring medium parameters. Bul.20/30.5.84 (4pp Dwg.No.1/1)

Derwent Class: S01; U21; U22

International Patent Class (Additional): H03K-007/06

14/7/10 (Item 10 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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002132111

WPI Acc No: 1979-F2043B/197924

Compensation of undesirable effects in capacitive humidity sensor - using moisture sensitive polymer at higher than ambient temp.

Patent Assignee: VAISALA OY (VAIS-N)

Inventor: ANTIKAINEN V; JALAVA J; SALASMAA E

Number of Countries: 007 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 2851686	A	19790607				197924 B
GB 2011093	A	19790704				197927
BR 7807935	A	19790731				197933
FI 7703680	A	19790731				197935
FR 2410821	A	19790803				197937
ZA 7806573	A	19800201				198015
DE 2851686	C	19811001				198141
IT 1100442	B	19850928				198704

Priority Applications (No Type Date): FI 773680 A 19771202

Abstract (Basic): DE 2851686 A

The method is for reducing the undesired characteristic effects of an electrical moisture **transducer**, esp. a capacitive **transducer** operating by **impedance** variation and using organic polymers as moisture sensitive material, and enables more rapid response and measurement accuracy, in partic. at greter than 90 per cent relative humidity.

For high relative humidity measurements, the temp. of the moisture sensitive material is raised above that of the surrounding atmosphere. The power supplied to heat the **transducer** is regulated according to the measured humidity.

Derwent Class: S03; T06

International Patent Class (Additional): G01N-027/02; G05B-013/00

20/3,AB/1

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2002 European Patent Office. All rts. reserv.

01431248

Method for calculating transducer capacitance to determine transducer temperature

Verfahren zur Berechnung der Kapazität eines Wandlers um die Temperatur des Wandlers zu bestimmen

Procede de calcul de capacite d'un transducteur pour la determination de la temperature du transducteur

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, INC., (1911811), 4545 Creek Road, Cincinnati, Ohio 45242, (US), (Applicant designated States: all)

INVENTOR:

Kramer, Kenneth S., 6331 Belmont Road, Loveland, OH 45140, (US)

Wiener, Eitan T., 9519 Croton Dr., Cincinnati, OH 45242, (US)

Donofrio, William T., 8755 Tanagerwoods Dr., Cincinnati, OH 45249, (US)

Houser, Kevin, 570 Foliage Lane, Springboro, OH 45066, (US)

Stulen, Faster B., 6245 Bridgewater Ct., Mason, OH 45040, (US)

LEGAL REPRESENTATIVE:

Fisher, Adrian John et al (52611), CARPMAELS & RANSFORD 43 Bloomsbury Square, London WC1A 2RA, (GB)

PATENT (CC, No, Kind, Date): EP 1208803 A2 020529 (Basic)

EP 1208803 A3 020821

APPLICATION (CC, No, Date): EP 2001308900 011019;

PRIORITY (CC, No, Date): US 241891 P 001020; US 975390 011010

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61B-017/32

ABSTRACT EP 1208803 A2

A method for calculating the capacitance of a transducer (C0)) without knowing the exact resonance frequency of a transducer/blade combination is achieved by sweeping across a broad frequency range which contains resonant and non-resonant frequencies where C0)) can be measured. A pre-defined frequency range is set independently of the resonance frequency of a specific transducer/blade combination. C0)) of the transducer/blade is measured at several different frequencies within the pre-defined frequency range to ensure that invalid C0)) measurements are disregarded, and the temperature of the transducer is calculated based on valid C0)) measurements. The determined transducer temperature, based on C0)) measurements, can be used to optimize performance and/or provide a safety shutdown mechanism for the generator.

ABSTRACT WORD COUNT: 116

NOTE:

Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200222	1282
SPEC A	(English)	200222	7602
Total word count - document A			8884
Total word count - document B			0
Total word count - documents A + B			8884

20/3,AB/2

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2002 European Patent Office. All rts. reserv.

00965071

Micromechanical Accelerometer for Automotive Applications
Mikromechanischer Beschleunigungssensor zur Verwendung in Kraftfahrzeugen
Accelerometre micromecanique pour des applications dans le domaine de
l'automobile

PATENT ASSIGNEE:

TMS Technologies, Inc., (2306850), 22 Thornwood Drive, Ithaca, New York
14850, (US), (applicant designated states:
AT;BE;CH;DE;DK;ES;FR;GB;IE;IT;LI;NL;SE)

INVENTOR:

Galvin, Gregory J., 124 East King Road, Ithaca, New York 14850, (US)

LEGAL REPRESENTATIVE:

Casey, Lindsay Joseph et al (72281), F. R. Kelly & Co. 27 Clyde Road
Ballsbridge, Dublin 4, (IE)

PATENT (CC, No, Kind, Date): EP 877255 A1 981111 (Basic)

APPLICATION (CC, No, Date): EP 97650016 970509;

PRIORITY (CC, No, Date): EP 97650016 970509

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; IE; IT; LI; NL; SE

INTERNATIONAL PATENT CLASS: G01P-015/08

ABSTRACT EP 877255 A1

A micromechanical capacitive accelerometer is provided from a single silicon wafer. The basic structure of the micromechanical accelerometer is etched in the wafer to form a released portion in the substrate, and the released and remaining portions of the substrate are coated with metal under conditions sufficient to form a micromechanical capacitive accelerometer. The substrate is preferably etched using reactive-ion etching for at least the first etch step in the process that forms the basic structure, although in another preferred embodiment, all etching is reactive-ion etching. The accelerometer also may comprise a signal-conditioned accelerometer wherein signal-conditioning circuitry is provided on the same wafer from which the accelerometer is formed, and VLSI electronics may be integrated on the same wafer from which the accelerometer is formed. The micromechanical capacitive accelerometer can be used for airbag deployment, active suspension control, active steering control, anti-lock braking, and other control systems requiring accelerometers having high sensitivity, extreme accuracy and resistance to out of plane forces.

ABSTRACT WORD COUNT: 162

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9846	1421
SPEC A	(English)	9846	18318
Total word count - document A			19739
Total word count - document B			0
Total word count - documents A + B			19739

20/3,AB/3

DIALOG(R)File 348:EUROPEAN PATENTS

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00675910

Method and apparatus for feedbackcontrol of an asymmetric differential
pressure transducer
Verfahren und Vorrichtung zur Ruckkopplungsregelung eines asymmetrischen

Differenzdruckwandler

Procede et dispositif de reglage par contre-reaction d'un transducteur asymetrique de pression differentielle

PATENT ASSIGNEE:

VAISALA OYJ, (686563), P.O. Box 26, 00420 Helsinki, (FI), (applicant designated states: CH;DE;DK;FR;GB;LI;NL;SE)

INVENTOR:

Ryhanen, Tapani, Mannerheimintie 150 A 22, FI-00270 Helsinki, (FI)

LEGAL REPRESENTATIVE:

Dempster, Benjamin John Naftel et al (62251), Withers & Rogers, Goldings House, 2 Hays Lane, London SE1 2HW, (GB)

PATENT (CC, No, Kind, Date): EP 647840 A2 950412 (Basic)

EP 647840 A3 960131

EP 647840 B1 990616

APPLICATION (CC, No, Date): EP 94307077 940928;

PRIORITY (CC, No, Date): FI 934434 931008

DESIGNATED STATES: CH; DE; DK; FR; GB; LI; NL; SE

INTERNATIONAL PATENT CLASS: G01L-009/12; G01L-011/00;

ABSTRACT EP 647840 A2

The invention is related to a feedback method and apparatus for a capacitive differential pressure transducer. According to the method, a pressure-transducing conducting diaphragm (1) forming a first, moving electrode of the transducer capacitances is kept in a force balance state by means of a pulse train signal applied to a fixed electrode (2, 3). According to the invention, the diaphragm (1) is kept stationary in a geometrically constant state and a desired electric potential is applied to said diaphragm (1), said pulse train signal is applied to at least two of said fixed electrodes (2, 3), or alternatively, sets of fixed subelectrodes so that the signals applied to said separate electrodes (2, 3) or sets of subelectrodes are at opposite polarities referenced to the electric potential of the pressure-transducing diaphragm (1) for at least a portion of the measurement duration, and the signals applied to said separate electrodes (2, 3) or sets of subelectrodes are of equal amplitude at least for each pair of electrodes (2, 3), and the same pulse train signal is simultaneously used for both establishing the force balance and performing the capacitance measurement. According to a preferred embodiment of the invention, changes in the dielectric coefficient of the transducer fill medium are compensated for by altering the pulse amplitude, pulse width or pulse rate depending on the primary modulation method used in the feedback control. (see image in original document)

ABSTRACT WORD COUNT: 266

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9924	891
CLAIMS B	(German)	9924	792
CLAIMS B	(French)	9924	1004
SPEC B	(English)	9924	4720
Total word count - document A			0
Total word count - document B			7407
Total word count - documents A + B			7407

20/3,AB/4

DIALOG(R)File 348:EUROPEAN PATENTS

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00546657

**Capacitance pressure transducer
Kapazitiver Druckwandler
Transducteur de pression capacitif**

PATENT ASSIGNEE:

THE BOC GROUP, INC., (205094), 575 Mountain Avenue, Murray Hill, New
Jersey 07974, (US), (applicant designated states: DE;FR;GB)

INVENTOR:

Pandorf, Robert, 139 Winchester Street, Newton Highlands, Massachusetts
02161, (US)

LEGAL REPRESENTATIVE:

Bousfield, Roger James et al (28494), The BOC Group plc Chertsey Road,
Windlesham Surrey GU20 6HJ, (GB)

PATENT (CC, No, Kind, Date): EP 549229 A2 930630 (Basic)
EP 549229 A3 930721
EP 549229 B1 960918

APPLICATION (CC, No, Date): EP 92311399 921214;

PRIORITY (CC, No, Date): US 812785 911223

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G01L-009/12; G01L-009/00;

ABSTRACT EP 549229 A2

a capacitance pressure transducer of increased thermal and mechanical stability comprising a cell (12) containing a plane parallel capacitor plate and an inlet tube (32) connected to an outer protective cover (16). A cell housing is contained within an air tight environmental enclosure of sufficient rigidity to isolate the cell housing from changes in atmospheric pressure. The plane parallel capacitor plate is formed by a circular diaphragm (36) peripherally connected to the tension ring and an electrode disk (38) located within the tension ring (40). The capacitor plate is mechanically isolated by a connection (44) between the tension ring and the cell housing (14) that is more flexible than the tension ring itself and a mounting for the electrode disk by which the electrode disk is connected solely to the tension ring by an annular support member (86) holding the electrode disk in a fixed position relative to the diaphragm. Additionally a baffle plate (99,102) divides the cell housing into baffle and diaphragm chambers to allow the gas to reach thermal equilibrium with the cell before exposure to the diaphragm. (see image in original document)

ABSTRACT WORD COUNT: 187

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	1728
CLAIMS B	(English)	EPAB96	1022
CLAIMS B	(German)	EPAB96	903
CLAIMS B	(French)	EPAB96	1093
SPEC A	(English)	EPABF1	5871
SPEC B	(English)	EPAB96	6017
Total word count - document A			7599
Total word count - document B			9035
Total word count - documents A + B			16634

20/3,AB/5

DIALOG(R)File 348:EUROPEAN PATENTS

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00380215

On-board tire pressure indicating system performing temperature-compensated pressure measurement, and pressure measurement circuitry thereof.

Vorrichtung zur Anzeige des Reifendrucks wahrend der Fahrt mit

**Temperaturkompensation und dazugehörige Reifendruckmessschaltung.
Systeme pour l'indication a bord de la pression des pneumatiques mesurant
la pression avec compensation par la temperature et circuit
correspondant.**

PATENT ASSIGNEE:

SCHRADER AUTOMOTIVE INC., (1095670), 566 Mainstream Drive, Nashville, TN
37228-1207, (US), (applicant designated states: DE;FR;GB;IT;SE)

INVENTOR:

Bock, Ditmar H, 5587 Rogers Road, Hamburg, New York 14075-3606, (US)
Grace, John M., 148 Soldiers Place, Buffalo, New York 14222, (US)

LEGAL REPRESENTATIVE:

Axelsson, Rolf et al (22251), Kransell & Wennborg AB Box 27834, S-115 93
Stockholm, (SE)

PATENT (CC, No, Kind, Date): EP 341226 A2 891108 (Basic)

EP 341226 A3 900418

EP 341226 B1 931201

APPLICATION (CC, No, Date): EP 89850124 890419;

PRIORITY (CC, No, Date): US 187129 880428; US 330386 890329

DESIGNATED STATES: DE; FR; GB; IT; SE

INTERNATIONAL PATENT CLASS: B60C-023/04;

ABSTRACT EP 341226 A2

A reliable indication of temperature-compensated pressure is provided from each of the wheels of a vehicle to an operator within the vehicle. A piezoresistive transducer bridge (1) is supplied by a constant current source in one embodiment, and by a voltage of constant amplitude in another embodiment. Voltage to the bridge is reversed on a periodic basis. The use of constant current enables compensation for temperature-induced drift in transducer bridge output. The use of constant voltage enables compensation for ambient temperature, and provides an absolute, rather than a relative indication of pressure or "flatness" within the tire. Voltage polarity reversal permits compensation of amplifier offset voltage. Energy is transmitted to and from the wheel by means of a tuned circuit which is excited by a primary coil (9) when the vehicle's engine is running. The secondary coil (10) mounted on the wheel may be either short-circuited or selectively opened and closed to alter the operation of the primary coil, thus providing an indication of tire pressure, that indication being detected and processed by suitable microcomputer circuitry which may exist on board the vehicle. Most of the active circuit elements of the invention may be implemented in a single monolithic integrated circuit, which can be attached to a tire valve.

ABSTRACT WORD COUNT: 216

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	1455
CLAIMS B	(German)	EPBBF1	679
CLAIMS B	(French)	EPBBF1	1002
SPEC B	(English)	EPBBF1	5066
Total word count - document A			0
Total word count - document B			8202
Total word count - documents A + B			8202

20/3,AB/6

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2002 European Patent Office. All rts. reserv.

00364908

Heating system control.

Regelung einer Heizungsanlage.

Commande d'une installation de chauffage.

PATENT ASSIGNEE:

Noye, Michael Edward, (1101770), 118 Hill House Road Stone, Dartford Kent
DA2 6EX, (GB), (applicant designated states:
AT;BE;CH;DE;ES;FR;GB;GR;IT;LI;LU;NL;SE)

INVENTOR:

Noye, Michael Edward, 118 Hill House Road Stone, Dartford Kent DA2 6EX,
(GB)

LEGAL REPRESENTATIVE:

Connor, Terence Kevin et al (29544), T.K. Connor & Co. 19 Station Road,
Sidcup, Kent DA15 7EB, (GB)

PATENT (CC, No, Kind, Date): EP 341959 A2 891115 (Basic)
EP 341959 A3 900718

APPLICATION (CC, No, Date): EP 89304643 890508;

PRIORITY (CC, No, Date): GB 8811186 880511

DESIGNATED STATES: AT; BE; CH; DE; ES; FR; GB; GR; IT; LI; LU; NL; SE

INTERNATIONAL PATENT CLASS: F24D-019/10; G05D-023/24;

ABSTRACT EP 341959 A2

A method and apparatus for controlling operation of a heating system (particularly a central heating system) including a boiler directly heating and passing water to a pipe network provides for sensing the temperature of the pipe network at a position therein remote from the boiler and controlling operation of the boiler in accordance with that sensed temperature.

The apparatus includes switch means (42') (operational amplifiers or comparators) - responsive to a voltage output by a device including a transducer (132) sensing the temperature of the pipe network and - operable to allow the boiler to fire until the sensed temperature reaches a first level and then prevent the boiler firing until the sensed temperature falls below a second level less than the first.

The two temperature levels may be varied, and the second level may be varied in dependence upon an ambient temperature remote from an area being heated.

An SCR is provided controlling operation of a relay in the power supply to a fuel control valve for the boiler - the SCR being controlled in response to the difference between the voltage output of the temperature sensor and a reference voltage.

Operation of the relay may be further controlled by a transistor itself controlled in response to the difference between the voltage output of the temperature sensor and a reference voltage.

The apparatus may include an LED illuminated when the boiler is disabled so as to provide an indication thereof.

Temperature sensing may be effected by a thermistor or a transducer which passes a current proportional to the temperature thereof and which is connected in series with resistor.

ABSTRACT WORD COUNT: 273

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	1506
SPEC A	(English)	EPABF1	8261
Total word count - document A			9767
Total word count - document B			0
Total word count - documents A + B			9767

20/3,AB/7

DIALOG(R)File 348:EUROPEAN PATENTS

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00315077

Gas flow correction sensor.

Aufnehmer zum Korrigieren der Messwerte eines Gaszählers.

Palpeur de correction pour compteurs a gaz.

PATENT ASSIGNEE:

SCHLUMBERGER INDUSTRIES LIMITED, (515911), 124 Victoria Road, Farnborough
Hampshire, GU14 7PW, (GB), (applicant designated states:
AT;CH;DE;ES;FR;IT;LI;NL)

INVENTOR:

Stansfeld, James Woolryche, 58 Kings Hill Beech, Near Alton Hampshire,
(GB)

Atkinson, David Ian Heaton, 6 Dollis Drive, Farnham Surrey, (GB)

LEGAL REPRESENTATIVE:

Stoole, Brian David et al (36412), Schlumberger Industries Limited 124
Victoria Road, Farnborough Hampshire GU14 7PW, (GB)

PATENT (CC, No, Kind, Date): EP 311238 A1 890412 (Basic)
EP 311238 B1 920401

APPLICATION (CC, No, Date): EP 88307118 880802;

PRIORITY (CC, No, Date): GB 8719105 870812

DESIGNATED STATES: AT; CH; DE; ES; FR; IT; LI; NL

INTERNATIONAL PATENT CLASS: G01F-015/04; G01D-003/04

ABSTRACT EP 311238 A1

A gas flow correction sensor for producing an output signal proportional to the ratio between line pressure and line temperature for gas flowing in a line (10), for use in correcting the output of a volumetric flow meter connected in the line (10), comprises a sealed chamber (14) containing a fixed mass of a reference gas. The sealed chamber (14) includes a bellows portion (15) subjected to line pressure, thus maintaining the reference gas at line pressure. Additionally, the sealed chamber (14) is thermally insulated and includes at least a portion disposed in a thermowell immersed in the line (10), so as to maintain the reference gas at line temperature. A vibrating quartz density sensor (101) is also mounted in the thermowell, so as to produce an output signal whose frequency is proportional to the density of the reference gas, which can be shown also to be proportional to the desired line pressure to line temperature ratio.

ABSTRACT WORD COUNT: 161

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	326
CLAIMS B	(German)	EPBBF1	396
CLAIMS B	(French)	EPBBF1	462
SPEC B	(English)	EPBBF1	2317
Total word count - document A			0
Total word count - document B			3501
Total word count - documents A + B			3501

20/3,AB/8

DIALOG(R)File 348:EUROPEAN PATENTS

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00283560

PARTICLE ANALYZER FOR MEASURING THE RESISTANCE AND REACTANCE OF A PARTICLE.

**TEILCHENANALYSATOR ZUR MESSUNG DES WIDERSTANDES UND DER REAKTANZ VON
TEILCHEN.**

**ANALYSEUR DE PARTICULES PERMETTANT DE MESURER LA RESISTANCE ET LA REACTANCE
D'UNE PARTICULE.**

PATENT ASSIGNEE:

COULTER CORPORATION, (382230), 600 West 20th Street, Hialeah, FL 33010,
(US), (applicant designated states: BE;CH;DE;FR;GB;IT;LI;NL;SE)

INVENTOR:

COULTER, Wallace, H., 910 Quail Avenue, Miami Springs, FL 33166, (US)
RODRIGUEZ, Carlos, M., 11780 S.W. 18th Street, Apt. 517, Miami, FL 33175
, (US)

LEGAL REPRESENTATIVE:

Nettleton, John Victor et al (34281), Abel & Imray Northumberland House
303-306 High Holborn, London, WC1V 7LH, (GB)

PATENT (CC, No, Kind, Date): EP 292523 A1 881130 (Basic)

EP 292523 A1 900816

EP 292523 B1 940105

WO 8803267 880505

APPLICATION (CC, No, Date): EP 87907867 871020; WO 87US2744 871020

PRIORITY (CC, No, Date): US 921654 861021

DESIGNATED STATES: BE; CH; DE; FR; GB; IT; LI; NL; SE

INTERNATIONAL PATENT CLASS: G01N-027/00;

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
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CLAIMS B	(English)	EPBBF1	1001
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CLAIMS B	(German)	EPBBF1	915
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CLAIMS B	(French)	EPBBF1	1018
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SPEC B	(English)	EPBBF1	4278
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Total word count - document A	0
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Total word count - document B	7212
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Total word count - documents A + B	7212
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20/3,AB/9

DIALOG(R) File 348:EUROPEAN PATENTS

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00282451

PRESSURE SENSOR SYSTEM.

DRUCKSENSORSYSTEM.

SYSTEME DETECTEUR DE PRESSION.

PATENT ASSIGNEE:

PANEX CORPORATION, (1081460), 12823 Park One Drive, Sugar Land, TX 77478,
(US), (applicant designated states: DE;FR;GB)

INVENTOR:

DELATORRE, Leroy, C., 12823 Park One Drive, Sugar Land, TX 77478, (US)

LEGAL REPRESENTATIVE:

Abbie, Andrew Kenneth et al (27484), R.G.C. Jenkins & Co. 26 Caxton
Street, London SW1H 0RJ, (GB)

PATENT (CC, No, Kind, Date): EP 333714 A1 890927 (Basic)

WO 8902512 890323

APPLICATION (CC, No, Date): EP 87906269 870908; WO 87US2285 870908

PRIORITY (CC, No, Date): EP 87906269 870908; WO 87US2285 870908

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: E21B-021/08;

ABSTRACT EP 333714 A1

A measurement **transducer** with a functionally integral quartz material
construction to provide spacing measurement gaps (G(sub(s)) and G(
sub(R))) transverse to one another with metalized film surfaces (33aa,

33bb, 35aa, 35bb) defining **capacitance** plates and electrically conductive paths (F(sub(T))). The **transducer** elements (68, 68(min)) are mounted under compression independent of a protective case (46b) and compensate for **temperature changes** to provide accurate **measurements**.

ABSTRACT WORD COUNT: 69

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

20/3,AB/10

DIALOG(R)File 348:EUROPEAN PATENTS

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00280732

METHOD AND APPARATUS FOR MEASURING AND CONTROLLING INDENTATION IN RESISTANCE WELDING.

VERFAHREN UND VORRICHTUNG ZUM MESSEN UND STEUERN DES EINSCHNITTES WAHREND DES WIDERSTANDSSCHWEISSENS.

PROCEDE ET APPAREIL DE MESURE ET DE REGLAGE DE L'INCISION LORS DU SOUDAGE PAR RESISTANCE.

PATENT ASSIGNEE:

DUFFERS SCIENTIFIC, INC., (609500), R.D. 5, Box 85, Troy New York 12180, (US), (applicant designated states: AT;BE;DE;FR;GB;IT;NL;SE)

INVENTOR:

FERGUSON, Hugo, Stanley, R.D. 2, Box 9, Averill Park, NY 12018, (US)

LEGAL REPRESENTATIVE:

Smulders, Theodorus A.H.J., Ir. et al (21191), Vereenigde Octrooibureaux Nieuwe Parklaan 97, NL-2587 BN 's-Gravenhage, (NL)

PATENT (CC, No, Kind, Date): EP 314679 A1 890510 (Basic)

EP 314679 B1 920506

WO 8800104 880114

APPLICATION (CC, No, Date): EP 87903822 870604; WO 87US1312 870604

PRIORITY (CC, No, Date): US 878713 860626; US 51476 870518

DESIGNATED STATES: AT; BE; DE; FR; GB; IT; NL; SE

INTERNATIONAL PATENT CLASS: B23K-011/10;

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	2126
CLAIMS B	(German)	EPBBF1	2189
CLAIMS B	(French)	EPBBF1	2270
SPEC B	(English)	EPBBF1	7614
Total word count - document A			0
Total word count - document B			14199
Total word count - documents A + B			14199

20/3,AB/11

DIALOG(R)File 348:EUROPEAN PATENTS

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00271000

Integrated, microminiature electric-to-fluidic valve and pressure/flow regulator and method of making same.

Integriertes, elektrisch ansteuerbares, fluidisches Mikrominiaturventil und

Druck-/Durchflussregulator sowie Verfahren zu dessen Herstellung.
Valve a fluide integree et microminiaturisee a commande electrique et
regulateur de pression/debit et son procede de fabrication.

PATENT ASSIGNEE:

THE BOARD OF TRUSTEES OF THE LELAND STANFORD JUNIOR UNIVERSITY, (242250),
Encina 105 Stanford University, Stanford California 94305, (US),
(applicant designated states: CH;DE;FR;GB;IT;LI;NL;SE)

INVENTOR:

Zdeblick, Mark, 575 S Rengstorff, Apartment 78, Mountain View California
94040, (US)

LEGAL REPRESENTATIVE:

Rodhain, Claude et al (18213), Cabinet Claude Rodhain 30, rue la Boetie,
F-75008 Paris, (FR)

PATENT (CC, No, Kind, Date): EP 261972 A2 880330 (Basic)
EP 261972 A3 890809
EP 261972 B1 921223

APPLICATION (CC, No, Date): EP 87308471 870924;

PRIORITY (CC, No, Date): US 911242 860924

DESIGNATED STATES: CH; DE; FR; GB; IT; LI; NL; SE

INTERNATIONAL PATENT CLASS: F15C-003/04; F15C-005/00; F15C-001/04;

ABSTRACT EP 261972 A2

There is disclosed herein an apparatus for converting control signals of an electrical or optical nature or any other type of signal which may be converted to a change of temperature of a fixed volume of material trapped in a chamber to flexure of a membrane forming one wall of the chamber. Typically, the device is integrated onto a silicon wafer by anisotropically etching a trench into said wafer far enough that a thin wall of silicon remains as the bottom wall of the trench. In some embodiments, polyimide is used as the material for the membrane. The trench is then hermetically sealed in any one of a number of different ways and the material to be trapped is either encapsulated during the sealing process or later placed in the cavity by use of a fill hole. Typically, a resistor pattern is etched on the face of pyrex wafer used as a top for the trench to form the cavity. When current is passed through this resistor, the material in the cavity is heated, its vapor pressure increases and expansion occurs. This causes the flexible wall to flex outward. This outward flex movement may then be used to either shut off a fluid flow path, or be sensed in some manner when using the device as a transducer. Typically, a fluid passageway having a nozzle aperture surrounded by a sealing surface is photolithographically etched into a third wafer. This third wafer is then bonded to the first wafer such that the sealing surface is adjacent to the membrane such that when expansion in the cavity occurs, the membrane flexes until it contacts the sealing surface and shuts off fluid flow through the nozzle aperture. There is also disclosed herein a pressure regulator and a flow regulator each of which are integrated on a single die using the valve structure disclosed herein.

ABSTRACT WORD COUNT: 318

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	8518
CLAIMS B	(German)	EPBBF1	3552
CLAIMS B	(French)	EPBBF1	3948
SPEC B	(English)	EPBBF1	26270
Total word count - document A			0
Total word count - document B			42288
Total word count - documents A + B			42288

?

21/3,AB/1

DIALOG(R)File 348:EUROPEAN PATENTS

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01507623

Method for detecting transverse mode vibrations in an ultrasonic hand piece having a blade

Verfahren zur Erkennung von Quervibrationen in einem Ultraschallhandgriff mit einer Schneideblatt

Methode de detection de vibrations transversales d'un appareil portable avec une lame

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, INC., (1911811), 4545 Creek Road, Cincinnati, Ohio 45242, (US), (Applicant designated States: all)

INVENTOR:

Giordano, James R., 5647 Chestnutview Lane, Milford, Ohio 45040, (US)

Stulen, Foster B., 6254 Bridgewater, Mason, Ohio 45040, (US)

LEGAL REPRESENTATIVE:

Fisher, Adrian John et al (52611), CARPMAELS & RANSFORD 43 Bloomsbury Square, London WC1A 2RA, (GB)

PATENT (CC, No, Kind, Date): EP 1260185 A2 021127 (Basic)

APPLICATION (CC, No, Date): EP 2002253576 020521;

PRIORITY (CC, No, Date): US 861870 010521

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61B-017/22; B06B-001/02

ABSTRACT EP 1260185 A2

A method for detecting transverse mode vibrations in an ultrasonic hand piece/blade for determining the existence of unwanted vibration in the hand piece/blade. A tracking filter centered at the drive frequency of the generator, is used to monitor the drive frequency of the ultrasonic generator and attenuate the drive signal when it exceeds a predetermined level. The tracking filter has a wide pass band. Alternatively, a tracking filter having a pass band which is divided into several regions is used to avoid other longitudinal resonances, such as a resonance at a second harmonic, or other spectral features that would otherwise detract from the tracking accuracy of the filter.

ABSTRACT WORD COUNT: 109

NOTE:

Figure number on first page: 4

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200248	328
SPEC A	(English)	200248	4684
Total word count - document A			5012
Total word count - document B			0
Total word count - documents A + B			5012

21/3,AB/2

DIALOG(R)File 348:EUROPEAN PATENTS

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01434544

Detection circuitry for surgical handpiece system

Detektionsschaltung fur chirurgisches Handstucksystem

Circuit de detection pour systeme a piece a main chirurgicale

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, (1773980), 4545 Creek Road, Cincinnati, Ohio 45242, (US), (Applicant designated States: all)

INVENTOR:

Donofrio, William T. , 8744 Tanagerwoods Dr., Cincinnati, OH 45249, (US)
LEGAL REPRESENTATIVE:

Fisher, Adrian John et al (52611), CARPMAELS & RANSFORD 43 Bloomsbury Square, London WC1A 2RA, (GB)

PATENT (CC, No, Kind, Date): EP 1214913 A2 020619 (Basic)

APPLICATION (CC, No, Date): EP 2001308929 011019;

PRIORITY (CC, No, Date): US 241889 P 001020; US 956359 010918

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61B-017/32; G01R-019/14

ABSTRACT EP 1214913 A2

Various circuit configurations for use in switch assembly used in a surgical hand piece system are provided. The circuit configuration provide a number of functions such as permitting the presence and direction of conductivity to be detected. The circuit configurations also provide a means for detecting and measuring the degree of influence of debris which is located between the conductive members of the handpiece. In addition, the circuit configurations also provide a means for identifying the type of switch end cap which is attached to the handpiece. The handpiece body and the switch mechanism are electrically connected to one another in such a manner that permits the switch end cap to be freely rotated about the handpiece body and reduces the number of conductive members needed to communicate the status of each switch.

ABSTRACT WORD COUNT: 134

NOTE:

Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200225	641
SPEC A	(English)	200225	14162
Total word count - document A			14803
Total word count - document B			0
Total word count - documents A + B			14803

21/3,AB/3

DIALOG(R) File 348:EUROPEAN PATENTS

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01423928

Apparatus and method for altering generator functions in an ultrasonic surgical system

Verfahren und Vorrichtung zur Anderung von Generatorfunktionen in einem chirurgischen Ultraschallgerat

Appareil et methode pour modifier les parametres de commande d'un systeme de chirurgie a ultra-sons

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, INC., (1911810), 4545 Creek Road, Cincinnati, OH 45242-2839, (US), (Applicant designated States: all)

INVENTOR:

Wiener, Eitan T. , 9519 Croton Dr., Cincinnati, OH 45242, (US)

Donofrio, William T. , 8755 Tanagerwoods Dr., Cincinnati, OH 45249, (US)
Kemerling, Robert A., 12146 Heathertree Ct., Cincinnati, OH 45249, (US)
LEGAL REPRESENTATIVE:

Fisher, Adrian John et al (52611), CARPMAELS & RANSFORD 43 Bloomsbury
Square, London WC1A 2RA, (GB)
PATENT (CC, No, Kind, Date): EP 1201196 A1 020502 (Basic)
APPLICATION (CC, No, Date): EP 2001308878 011019;
PRIORITY (CC, No, Date): US 242171 P 001020; US 954795 010917
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: A61B-017/32

ABSTRACT EP 1201196 A1

There is disclosed a system for implementing surgical procedures
comprising:
an ultrasonic surgical hand piece (30) having an end-effector (32);
a console (10) having a digital signal processor (DSP) for controlling
the hand piece;
an electrical connection (19) connecting the hand piece (30) and the
console (10), wherein the console sends a drive current to drive the hand
piece which imparts ultrasonic longitudinal movement to the end-effector
(32); and
a memory (400) disposed in the electrical connection (19), wherein the
console reads information stored in the memory to authenticate the hand
piece (30) for use with the console (10).

ABSTRACT WORD COUNT: 103

NOTE:

Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200218	867
SPEC A	(English)	200218	9257
Total word count - document A			10124
Total word count - document B			0
Total word count - documents A + B			10124

21/3,AB/4

DIALOG(R)File 348:EUROPEAN PATENTS

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01421150

**Method for driving an ultrasonic system to improve acquisition of blade
resonance frequency at startup**

**Antriebsverfahren fur ein Ultraschallsystem mit verbesserter
Klingenresonanz wahrend der Anlaufphase**

**Methode d'entrainement d'un systeme a ultrason pour l'amelioration de
l'acquisition d'une frequence de resonance de lame a la mise en marche**

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, INC., (1911811), 4545 Creek Road, Cincinnati, Ohio
45242, (US), (Applicant designated States: all)

INVENTOR:

Friedman, Allan L., 2522 Vera Avenue No. 4, Cincinnati, OH 45237, (US)
Donofrio, William T. , 8755 Tanagerwoods Drive, Cincinnati, OH 45249,
(US)

Wiener, Eitan , 9519 Croton Drive, Cincinnati, 45242, (US)

LEGAL REPRESENTATIVE:

Fisher, Adrian John et al (52611), CARPMAELS & RANSFORD 43 Bloomsbury Square, London WC1A 2RA, (GB)
PATENT (CC, No, Kind, Date): EP 1199048 A2 020424 (Basic)
EP 1199048 A3 020821
APPLICATION (CC, No, Date): EP 2001308910 011019;
PRIORITY (CC, No, Date): US 241895 P 001020; US 866948 010529
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: A61B-017/32

ABSTRACT EP 1199048 A2

The ability of an ultrasonic system to sweep and lock onto a resonance frequency of a blade subjected to a heavy load at startup is improved by applying a high drive voltage or a high drive current while systematically increasing the level of the applied signal. Increasing the drive signal to the hand piece results in an improved and more pronounced "impedance spectrum." That is, under load, the increased drive signal causes the maximum phase margin to become higher and the minimum/maximum impedance magnitude to become more pronounced. Increasing the excitation drive signal to the hand piece/blade at startup significantly alleviates the limiting factors associated with ultrasonic generators, which results in an increase of the maximum load capability at startup.

ABSTRACT WORD COUNT: 121

NOTE:

Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200217	661
SPEC A	(English)	200217	5761
Total word count - document A			6422
Total word count - document B			0
Total word count - documents A + B			6422

21/3,AB/5

DIALOG(R)File 348:EUROPEAN PATENTS

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01421143

Apparatus and method for alerting generator functions in an ultrasonic surgical system

Vorrichtung und Verfahren zum Aufmerksammachen von Generatorfunktionen in einem chirurgischen Ultraschallsystem

Dispositif et procede pour alarmer des fonctions de generateur dans un systeme chirurgical ultrasonique

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, INC., (1911810), 4545 Creek Road, Cincinnati, OH 45242-2839, (US), (Applicant designated States: all)

INVENTOR:

Wiener, Eitan T. , 9519 Croton Dr., Cincinnati, OH 45242, (US)

Gill, Robert P., 9122 Nottingham Way, Mason, OH 45040, (US)

Donofrio, William T. , 8755 Tanagerwoods Dr., Cincinnati, OH 45249, (US)

Schwemberger, Richard F., 8250 Eagle Creek Rd., Cincinnati, OH 45247, (US)

LEGAL REPRESENTATIVE:

Fisher, Adrian John et al (52611), CARPMAELS & RANSFORD 43 Bloomsbury Square, London WC1A 2RA, (GB)

PATENT (CC, No, Kind, Date): EP 1199046 A2 020424 (Basic)

APPLICATION (CC, No, Date): EP 2001308893 011019;

PRIORITY (CC, No, Date): US 241886 P 001020
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: A61B-017/32

ABSTRACT EP 1199046 A2

The present invention provides a system for surgery which includes an ultrasonic hand piece having a end-effector, a console having a digital signal processor (DSP) for controlling the hand piece, and a memory disposed in the end-effector. The generator console sends a drive current to drive the hand piece which imparts ultrasonic longitudinal movement to the blade. As the generator console reads the memory, the hand piece is authenticated for use with the generator console if a copyrighted data string is present in the memory. In a particular embodiment, the data string is an encrypted code, where the hand piece is authenticated for use with the console by decoding a corresponding encryption algorithm resident in the generator console and providing a responding data pattern.

ABSTRACT WORD COUNT: 125

NOTE:

Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200217	2109
SPEC A	(English)	200217	10307
Total word count - document A			12416
Total word count - document B			0
Total word count - documents A + B			12416

21/3,AB/6

DIALOG(R)File 348:EUROPEAN PATENTS

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01421141

Method for differentiating between burdened and cracked ultrasonically tuned blades

Verfahren zum Unterscheiden zwischen verschmutzten und gebrochenen ultraschall betriebenen Klingen

Procede permettant de differencier des lames usees et des lames cassees actives par des ultrasons

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, (1773980), 4545 Creek Road, Cincinnati, Ohio 45242, (US), (Applicant designated States: all)

INVENTOR:

Friedman, Allan L., 2522 Vera Avenue, No. 4, Cincinnati, OH 45237, (US)
Donofrio, William T., 8755 Tanagerwoods Drive, Cincinnati, OH 45249, (US)

LEGAL REPRESENTATIVE:

Fisher, Adrian John (52611), CARPMAELS & RANSFORD 43 Bloomsbury Square, London WC1A 2RA, (GB)

PATENT (CC, No, Kind, Date): EP 1199045 A1 020424 (Basic)

APPLICATION (CC, No, Date): EP 2001308879 011019;

PRIORITY (CC, No, Date): US 241888 P 001020; US 930104 P 010814

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61B-017/32; A61F-009/007

ABSTRACT EP 1199045 A1

A method for differentiating between ultrasonically tuned blades which are broken or cracked, and blades which are gunked by evaluating measured impedance differences when a system is first excited with a low displacement signal and then with a high displacement signal. The method is performed irrespective of the age of the hand piece/blade, the **temperature** or specific type of hand piece or blade, and is not affected by self healing effects of slightly cracked blades. Moreover, the method facilitates the quantifiable determination of the amount of gunk on the blade. Absolute impedance measurements of the **transducer** or blade are unnecessary. Instead, only relative impedance measurements are required, which greatly simplifies the measuring criteria. This provides a way to measure the amount of gunk accumulation, and thereby a way to calculate/estimate the amount of heat generated at the sheath, as well as a way to calculate/estimate the amounts of degradation to the load curve of the ultrasonic system.

ABSTRACT WORD COUNT: 158

NOTE:

Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200217	1187
SPEC A	(English)	200217	8977
Total word count - document A			10164
Total word count - document B			0
Total word count - documents A + B			10164

21/3,AB/7

DIALOG(R) File 348:EUROPEAN PATENTS

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01421138

Method for detecting presence of a blade in an ultrasonic system

Verfahren zur Detektion einer Klinge in einem Ultraschallsystem

Methode de detection d'une lame dans un systeme ultrasonique

PATENT ASSIGNEE:

ETHICON ENDO-SURGERY, INC., (1911811), 4545 Creek Road, Cincinnati, Ohio
45242, (US), (Applicant designated States: all)

INVENTOR:

Wiener, Eitan , 9519 Croton Drive, Cincinnati, OH 45242, (US)

Stulen, Foster B. , 6245 Bridgewater Court, Mason, OH 45040, (US)

Friedman, Allan L., 2522 Vera Ave., No. 4, Cincinnati, OH 45237, (US)

LEGAL REPRESENTATIVE:

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Square, London WC1A 2RA, (GB)

PATENT (CC, No, Kind, Date): EP 1199042 A2 020424 (Basic)

EP 1199042 A3 020821

APPLICATION (CC, No, Date): EP 2001308874 011019;

PRIORITY (CC, No, Date): US 242169 P 001020; US 866911 010529

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: A61B-017/32

ABSTRACT EP 1199042 A2

The type of blade installed in a hand piece of an ultrasonic system is determined and the information used to adjust the fault detection threshold of the generator by using an impedance diagram to determine the

type of blade which is connected to the hand piece. A check is performed to determine the magnitude of the blade impedance at resonance. If the hand piece is bare (i.e. no blade is attached), the magnitude of the impedance at resonance is typically less than 125 ohms. If on the other hand, a blade is connected, the impedance will be greater than 125 ohms. This value is used to indicate the presence or absence of a blade.

ABSTRACT WORD COUNT: 115

NOTE:

Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200217	866
SPEC A	(English)	200217	4958
Total word count - document A			5824
Total word count - document B			0
Total word count - documents A + B			5824

?

11/7/1 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2002 Institution of Electrical Engineers. All rts. reserv.

6134636 INSPEC Abstract Number: A1999-04-8770F-013, B1999-02-7510D-076

Title: Bioelectrical impedance analysis: the electronic skin-fold caliper?

Author(s): Ward, L.; Cornish, B.; Fuller, N.; Dewit, O.; Elia, M.; Thomas, B.

Author Affiliation: Dept. of Biochem., Queensland Univ., Brisbane, Qld., Australia

Conference Title: Proceedings of the 2nd International Conference on Bioelectromagnetism (Cat. No.98TH8269) p.101-2

Editor(s): Lithgow, B.; Cosic, I.

Publisher: IEEE, New York, NY, USA

Publication Date: 1998 Country of Publication: USA vii+206 pp.

ISBN: 0 7803 3867 7 Material Identity Number: XX-1998-00942

Conference Title: Proceedings of the 2nd International Conference on Bioelectromagnetism

Conference Sponsor: Dick Wicks Magnetic Pain Relief Products; Heart Found.; Found East West Med. - Taiwan

Conference Date: 15-18 Feb. 1998 Conference Location: Melbourne, Vic., Australia

Language: English Document Type: Conference Paper (PA)

Treatment: Practical (P)

Abstract: A novel method utilising both tetrapolar and bipolar **impedance** analysis was developed for the measurement of the **impedance** of skin and underlying subcutaneous tissue. **Impedance** and skin-fold thickness were measured at four sites (biceps, triceps, subscapular and suprailiac) conventionally used for measurement of skin-folds and estimation of total body fat. **Impedance** was highly and significantly correlated ($r=0.80$ to 0.94) with skin-folds at three sites (biceps, subscapular, suprailiac) and more weakly ($r=0.57$) at the triceps. Both inter- and intra-observer reliability of measurement of **impedance** was higher than for skin-folds. The method has potential as a simple but more reliable method for the estimation of skin-folds but awaits validation against an accepted reference method such as **ultra - sound** or MRI. (5 Refs)

Subfile: A B

Copyright 1999, IEE

11/7/2 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

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04138918 INSPEC Abstract Number: A9211-8770G-003, B9206-7520-003, C9206-3385-008

Title: Electrosurgical units

Author(s): Ninomiya, S.; Kobayashi, T.; Ohtomo, N.

Journal: JRC Review no.30 p.47-54

Publication Date: 1991 Country of Publication: Japan

CODEN: NMGIIDE ISSN: 0287-1564

Language: Japanese Document Type: Journal Paper (JP)

Treatment: Applications (A); Practical (P)

Abstract: The ESU-123 electrosurgical unit is used to cut and coagulate tissues in surgical operations. During the cutting process, the output power of the electrosurgical unit tends to vary with the **impedance** values of the tissues. The ESU-123 operates in a flat mode in which its output power is stabilized, keeping the cutting sharpness high. Two monopolar handpieces can be used at the same time, which generate output power

alternately to avoid the overheating of tissues caused by interference of the two generators. A remote control function enables the surgeon to control the output power mode from the two small keys of the conventional **handpiece** in a sterile field. (0 Refs)
Subfile: A B C

11/7/3 (Item 3 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2002 Institution of Electrical Engineers. All rts. reserv.

02722990 INSPEC Abstract Number: B86055049

Title: Build this simple telephone hold

Author(s): Dawson, C.

Journal: Electronics Australia vol.47, no.12 p.50-1

Publication Date: Dec. 1985 Country of Publication: Australia

CODEN: EAUSAU ISSN: 0313-0150

Language: English Document Type: Journal Paper (JP)

Treatment: Practical (P)

Abstract: It is almost instinctive to cover the telephone mouthpiece to prevent the remote party from overhearing confidential information. A hold switch performs the same function, but much more elegantly and with complete privacy. With the hold circuit installed, it is possible to replace the **handpiece** without disconnecting the line. The device is activated by pressing a switch before replacing the **handpiece**. A LED illuminates to indicate that the hold is operating. The hold function is discontinued as soon as the **handpiece** is lifted 'off the hook' again. The hold circuit is both simple and virtually universal. It can be used with any normal telephone and, is powered directly from the telephone lines. The author explains the operation of the circuit and describes its construction. (0 Refs)

Subfile: B

11/7/4 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2002 Institution of Electrical Engineers. All rts. reserv.

01490223 INSPEC Abstract Number: A80030817, B80016255, C80013565

Title: Ultrasound images corrected for refraction and attenuation: a comparison of new high resolution methods

Author(s): Johnson, S.A.; Greenleaf, J.F.; Rajogopalan, B.; Bahn, R.C.

Author Affiliation: Dept. of Pathology & Anatomy, Mayo Clinic, Rochester, MN, USA

Conference Title: Computer Aided Tomography and Ultrasonics in Medicine p.55-71

Editor(s): Raviv, J.; Greenleaf, J.F.; Herman, G.T.

Publisher: North-Holland, Amsterdam, Netherlands

Publication Date: 1979 Country of Publication: Netherlands x+319 pp.

ISBN: 0 444 85299 9

Conference Sponsor: IFIP

Conference Date: 8-10 Aug. 1978 Conference Location: Haifa, Israel

Language: English Document Type: Conference Paper (PA)

Treatment: New Developments (N); Practical (P)

Abstract: A reflection technique using focused or synthetically focused **ultra - sound** energy has been developed which permits the synthesis or reconstruction of images of reflection and acoustic **impedance**. This technique uses digitally sampled reflection and transmission data obtained from an aperture which enclosed or circumscribes the subject of study. Control of the waveform of the transmitted signal is an important feature.

These and other new high resolution imaging methods are compared with older clinical techniques. The extension of waveform control to linear array imaging is discussed and example images are presented. The effect of apodizing linear arrays is demonstrated by sample images. The mixing of image point response functions for two points due to nonlinear data collection or compression is demonstrated. Images produced from a new iterative data inversion process are presented. Potential diagnostic medical applications are discussed. (26 Refs)

Subfile: A B C

11/7/5 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)
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08137752 BIOSIS NO.: 000093124900

ULTRASONOGRAPHY AND GUIDED BIOPSY IN THE DIAGNOSIS OF HEPATOCELLULAR CARCINOMA

AUTHOR: BOLONDI L; GAIANI S; BENZI G; ZIRONI G; RIGAMONTI A; FUSCONI F; BARBARA L

AUTHOR ADDRESS: I CLIN. MED., POLICLINICO S. ORSOLA, VIA MASSARENTI 9, 40138 BOLOGNA, ITALY.

JOURNAL: ITAL J GASTROENTEROL 24 (1). 1992. 46-49. 1992

FULL JOURNAL NAME: Italian Journal of Gastroenterology

CODEN: ITJGD

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: Ultrasonographic screening and follow-up of patients with chronic liver disease lead to the detection of a large number of small asymptomatic hepatocellular carcinomas, so that the changing appearance of this neoplasm during its natural history has now been recognized. Ultrasonography provides information on shape, echogenicity, growth pattern and vascular involvement of the neoplasm. Three different shapes may be identified, depending upon the size and the invasiveness of the neoplasm: nodular, massive and diffuse. The echogenicity is variable and the tumour mass may appear hypo, hyper or isoechoic in comparison with the surrounding liver tissue. A mixed pattern and/or a hypoechoic ring may also be visualized. A tendency to change from a low echo pattern to a low periphery and finally to a massive pattern with increasing echogenicity has been shown in Japanese patients. The infiltrative growth pattern may be grossly distinguished from the expansive one on the basis of the aspect of the tumour boundary. Vascular invasion is easily recognizable as a mass within a major portal branch or even in the portal trunk. Duplex and color Doppler ultrasonography enable further insights on the vascular alterations related to this neoplasm. Abnormal signals, typical of HCC, are characterized by high-peak with broadening of spectrum. Low **impedance** continuous signals are less characteristic. Finally, **ultra - sound** guidance allows puncture of intrahepatic nodules as small as 1cm. The sensitivity of this procedure in the diagnosis of focal liver lesions is very high, varying between 91% and 95% with a specificity of 92%-100%.

11/7/6 (Item 1 from file: 6)
DIALOG(R)File 6: NTIS
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1698260 NTIS Accession Number: DE92040985

SMART: A modular architecture for robotics and teleoperation
Anderson, R. J.

Sandia National Labs., Albuquerque, NM.

Corp. Source Codes: 068123000; 9511100

Sponsor: Department of Energy, Washington, DC.

Report No.: SAND-92-1632C; CONF-921181-3

1992 8p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI9306; ERA9307

ISRAM '92: 4th international symposium on robotics and manufacturing, Sante Fe, NM (United States), 11-13 Nov 1992. Sponsored by Department of Energy, Washington, DC.

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NTIS Prices: PC A02/MF A01

Country of Publication: United States

Contract No.: AC04-76DP00789

This paper introduces SMART: Sandia National Laboratory's Modular Architecture for Robotics and Teleoperation. SMART is designed to integrate the different slave devices (e.g., large hydraulic arms, mobile manipulators, gantry robots), sensors (e.g., **ultra - sonic** sensors, force sensors), and input devices, (e.g., track ball, force-reflecting master, autonomous trajectory generators) required for waste management and environmental restoration tasks. The modular architecture allows for rapid synthesis of complex telerobotic systems. This paper introduces some sample modules and illustrates how the modules can be connected to achieve telerobotic behaviors. Examples include autonomous control, **impedance** control, and enhanced bilateral teleoperation.

11/7/7 (Item 1 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)

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05854880 E.I. No: EIP01236534736

Title: A high frequency magnetic field probe for determination of interface levels in separation tanks

Author: Hammer, E.; Abro, E.; Cimpan, E.; Yan, G.

Corporate Source: Department of Physics Applied Physics and Technol. section University of Bergen, N-5007 Bergen, Norway

Conference Title: Process Imagin for Automatic Control

Conference Location: Boston, MA, United States Conference Date: 20001105-20001106

Sponsor: SPIE

E.I. Conference No.: 58124

Source: Proceedings of SPIE - The International Society for Optical Engineering v 4188 2001. p 294-299

Publication Year: 2001

CODEN: PSISDG ISSN: 0277-786X

Language: English

Document Type: CA; (Conference Article) Treatment: T; (Theoretical)

Journal Announcement: 0107W4

Abstract: There are many principles for interface level detection in separation tanks based on capacitance, **ultra sound**, microwave, nuclear radiation etc. These principles work well in many situations, in others they fail. The high frequency magnetic field principle works in most of the situations that will occur in separation tanks for crude oils for detection of the clean water level, the layers of water continuous water/oil emulsion and the oil continuous oil/water emulsion, the oil level, the thickness of the foam layer and the gas. When a coil is dipped into a fluid its electrical **impedance** will be dependent on the

characteristics of the fluid. If the material is electrical conductive the **impedance** of the coil will be reduced due to the eddy currents induced in the material, setting up a magnetic field directed against the field generated by the coil. The inductance will increase but still remain low also in the water continuous water/oil emulsion zone, but will rapidly increase in the oil continuous oil/water emulsion zone. In pure crude oil the inductance will be high and even higher in gas. The coil inductance is measured by connecting the coil to a LC-oscillator. 2 Refs.

11/7/8 (Item 2 from file: 8)
DIALOG(R)File 8: Ei Compendex(R)
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04971911 E.I. No: EIP98034113171

Title: 1.5-D ultrasound transducer array characterization
Author: Barthe, Peter G.; Slayton, Michael H.
Corporate Source: Guided Therapy Systems, Inc, Mesa, AZ, USA
Conference Title: Proceedings of the 1996 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Part 2 (of 5)
Conference Location: Amsterdam, Neth Conference Date: 19961031-19961103
Sponsor: IEEE
E.I. Conference No.: 48103
Source: Annual International Conference of the IEEE Engineering in Medicine and Biology - Proceedings v 2 1996. IEEE, Piscataway, NJ, USA, 96CB36036. p 895-897
Publication Year: 1996
CODEN: CEMBAD ISSN: 0589-1019
Language: English
Document Type: CA; (Conference Article) Treatment: T; (Theoretical); X; (Experimental)

Journal Announcement: 9805W1
Abstract: The objective of this work was twofold. The first was to investigate theoretically and experimentally the acoustical and electrical parameters of 1.5-D **ultra - sound** transducer arrays for 3-D imaging applications. Modeling and simulations of arrays of various geometry, center frequencies, and materials were performed, analyzed and optimized. The optimization criteria was the best achievable lateral and elevation imaging resolution. The second objective was to fabricate several optimally designed prototypes of 1.5-D arrays, measure their acoustic fields in three dimensions, and characterize their performance. Investigated were such vitally important performance issues such as spatial resolution, acoustical and electrical crosstalk, matching techniques, electrical **impedance** and element size, pulse-echo bandwidth and sensitivity. In this paper results of the study on transducer dispersion and **impedance** is reported. It is shown that ceramic pillars of the correct aspect ratio must be used to define the active 1.5-D array elements. (Author abstract) 3 Refs.

11/7/9 (Item 3 from file: 8)
DIALOG(R)File 8: Ei Compendex(R)
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04208013 E.I. No: EIP95072778869

Title: Estimation of reservoir porosity and saturations using multiple sources of geophysical data
Author: Katz, S.A.; Chilingarian, G.V.; Islam, M.R.
Corporate Source: Univ of Southern California, Los Angeles, CA, USA
Source: Journal of Petroleum Science & Engineering v 13 n 2 Jun 1995. p

103-111

Publication Year: 1995

CODEN: JPSEE6 ISSN: 0920-4105

Language: English

Document Type: JA; (Journal Article) Treatment: T; (Theoretical)

Journal Announcement: 9509W3

Abstract: This paper is aimed at developing a technique for estimation of porosity and saturations of up to two phases by using several sources of geophysical data. The method is based on the use of four sources of geophysical information, namely, inversion of normal incidence reflection seismology data, high resolution velocity analysis, well-log methods, and **ultra - sonic** well-log estimates of P and S velocities in boreholes. It is assumed that the relationship between porosity and measured geophysical parameters are described by a model belonging to a predefined set of models. The model-related functions of measured geophysical parameters are approximated by a combination of predefined porosity-saturation functions. The results of these approximations are then used for the prediction of porosity when several measured geophysical parameters are available. In the case of two-phase media, a relative volume of each phase may be derived using acoustic **impedance** or estimates of velocities or densities based on the use of a system of balance equations. For a three-phase medium, estimates of P and S velocities (or acoustic **impedances**) and densities may be used jointly to estimate relative volumes of all three components. (Author abstract) 15 Refs.

11/7/10 (Item 4 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)

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01994688 E.I. Monthly No: EI8607064939 E.I. Yearly No: EI86109413

Title: ACOUSTIC PROPERTIES OF MICROPOROUS SiO//2-AEROGEL.

Author: Gronauer, M.; Fricke, J.

Corporate Source: Univ Wuerzburg, Wuerzburg, West Ger

Source: Acustica v 59 n 3 Jan 1986 p 177-181

Publication Year: 1986

CODEN: ACUSAY ISSN: 0001-7884

Language: ENGLISH

Document Type: JA; (Journal Article) Treatment: X; (Experimental)

Journal Announcement: 8607

Abstract: Supercritically dried silica aerogel exhibits high transparency in the optical region and provides excellent thermal insulation, if evacuated. It thus is suitable as superinsulating spacer in evacuated window systems. The sound velocity in silica aerogel tiles as a function of aerogel density is derived from longitudinal **ultra sound** propagation. At the lowest densities available ($\rho \approx 70 \text{ g/l}$) surprisingly small sound velocities of only about 120 m/s result. To our knowledge these are the smallest sound velocities ever reported for inorganic solid materials. The acoustic **impedance** for aerogel is in the range of $10^{**4} \dots 10^{**5} \text{ kg/m**2s}$. Consequences for SiO//2-aerogel applications in acoustic delay lines, noise isolation systems in acoustic $\lambda/4$ -antireflection layers, and in window systems are discussed. (Author abstract) 19 refs.

11/7/11 (Item 5 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)

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00109154 E.I. Monthly No: EI70X153845

Title: Attempts to measure by ultrasonic methods the hardness of thin 70-

30 brass sheet.

Title: Tentatives de mesure de la durete par les **ultra - sons** dans le cas de la tole mince de laiton 70/30.

Author: BITRAN, M.

Corporate Source: Trefimetaux GP, Argenteuil, Grance

Source: Revue de Metallurgie (Paris) v 67 n 1 Jna 1970 p 55-63

Publication Year: 1970

CODEN: REMEA ISSN: 0035-1563

Language: FRENCH

Journal Announcement: 70X1

Abstract: Two methods are compared- determining hardness via grain size by ultrasonic attenuation, and determining hardness by measuring the mechanical contact **impedance** . The second method is preferred, because it is a direct hardness measurement and could be used with any material. In French.

11/7/12 (Item 1 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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07673589 Genuine Article#: 194ZH Number of References: 63

Title: Diagnostic role of ED ultrasound in deep venous thrombosis and pulmonary embolism

Author(s): Frazee BW; Snoey ER (REPRINT)

Corporate Source: HIGHLAND GEN HOSP,DEPT EMERGENCY MED, 1411 E 31ST ST/OAKLAND//CA/94602 (REPRINT); HIGHLAND GEN HOSP,DEPT EMERGENCY MED/OAKLAND//CA/94602

Journal: AMERICAN JOURNAL OF EMERGENCY MEDICINE, 1999, V17, N3 (MAY), P 271-278

ISSN: 0735-6757 Publication date: 19990500

Publisher: W B SAUNDERS CO, INDEPENDENCE SQUARE WEST CURTIS CENTER, STE 300, PHILADELPHIA, PA 19106-3399

Language: English Document Type: ARTICLE

Abstract: Proximal deep venous thrombosis (DVT), which may lead to pulmonary embolism (PE), is one of the serious and underrecognized causes of lower extremity pain and swelling. The diagnosis of DVT requires a confirmatory objective test because clinical signs and symptoms are unreliable. Assessment of thigh Vein compressibility with rear-time ultrasound is an accurate test for DVT that may be performed rapidly at the bedside. Although unproven, we propose that wider use of this test in the emergency department by emergency physicians might increase the diagnosis of DVT, prevent PE, and reduce utilization of other more costly and invasive diagnostic tests. Evaluation of DVT by compression **ultra sound** may also be incorporated in the diagnostic workup of suspected PE. In the case of a nondiagnostic ventilation/perfusion scan, demonstration of proximal DVT by ultrasound represents a likely source of PE and an indication for anticoagulation, eliminating the need for pulmonary angiography. In the critically ill patient whose presentation is consistent with massive PE, one rapid approach to the diagnosis may be to combine transthoracic echocardiography with lower extremity ultrasound. Copyright (C) 1999 by W.B. Saunders Company.

11/7/13 (Item 2 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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02010726 Genuine Article#: JT972 Number of References: 75

Title: MEDICAL IMAGING - STATE-OF-THE-ART AND FUTURE-DEVELOPMENT

Author(s): LOUIS AK

Corporate Source: UNIV SAARLAND, DEPT MATH/W-6600 SAARBRUCKEN//GERMANY/

Journal: INVERSE PROBLEMS, 1992, V8, N5 (OCT), P709-738

ISSN: 0266-5611

Language: ENGLISH Document Type: REVIEW

Abstract: An overview on medical imaging techniques is given from an algorithmic point of view. The mathematical framework, inverse problems and regularization, is sketched. The Radon transform serves as mathematical model for studying resolution, noise amplification and inversion methods in reconstruction problems. The imaging techniques discussed are x-ray computer tomography, magnetic resonance imaging, **ultra - sound** tomography, **impedance** computer tomography, diffuse tomography, biomagnetism and emission computer tomography as single-particle emission tomography and positron emission tomography. There are close connections to non-destructive evaluation.

11/7/14 (Item 3 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

(c) 2002 Inst for Sci Info. All rts. reserv.

01276344 Genuine Article#: GK519 Number of References: 10

Title: EVALUATION OF ARTERIAL COMPLIANCE IN RENAL-FAILURE

Author(s): LONDON G; GUERIN A; MARCHAIS S; LEVY B

Corporate Source: CTR HOSP FH MANHES, 8 GRANDE RUE/F-91700

FLEURY-MEROGIS//FRANCE/; HOP LARIBOISIERE, INSERM, U141/F-75475 PARIS
10//FRANCE/

Journal: ARCHIVES DES MALADIES DU COEUR ET DES VAISSEaux, 1991, V84, NSI, P 63-66

Language: FRENCH Document Type: ARTICLE

Abstract: The pulse wave velocity (PWV) of the aorta, of the arm, of the leg, was measured in 90 normal subjects (N) and 92 dialysis patients (D) of the same age and blood pressure status. All patients underwent blood biochemistry, especially serum liquid concentrations, and aortic **ultra - sonography**. Aortic calcifications were diagnosed by echo and radiologic examination. Aortic PWV was significantly higher in D (113 +/- 319 cm/s) than in N (965 +/- 216 cm/s) (p = 0.0016). The aortic diameters were greater in D both at the aortic root and at the bifurcation. The pulse pressure was higher in D (76.6 +/- 23.7 vs 63.9 +/- 2 mmHg, p = 0.007). In both populations, the PWV increased with age and blood pressure but aortic calcification was only weakly correlated with this increase. These results indicate that the compliance of the aortic wall is reduced in D and leads to an increase in the pulsatile component of the blood pressure and thereby to an increase in left ventricular afterload.

11/7/15 (Item 1 from file: 73)

DIALOG(R)File 73:EMBASE

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10550961 EMBASE No: 2000016019

Sequentially combined hormone replacement therapy reduces impedance to flow within the uterine and central retinal arteries in healthy postmenopausal women

Van Baal W.M.; Kenemans P.; Stehouwer C.D.A.; Peters-Muller E.R.A.; Van Vugt J.M.G.; Van der Mooren M.J.

Dr. P. Kenemans, Department of Obstetrics/Gynecology, Univ. Hospital Vrije Universiteit, PO Box 7057, 1007 MB Amsterdam Netherlands

American Journal of Obstetrics and Gynecology (AM. J. OBSTET. GYNECOL.)
(United States) 1999, 181/6 (1365-1373)
CODEN: AJOGA ISSN: 0002-9378
DOCUMENT TYPE: Journal; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 25

OBJECTIVE: The purpose of this study was to investigate the long-term effects of combined hormone re- placement therapy on the **impedances** of the uterine, central retinal, and ophthalmic arteries in healthy postmenopausal women. STUDY DESIGN: In a prospective controlled study we randomly assigned 30 healthy postmenopausal women (mean age, 52 +/- 3 years) to 2 groups. Women in the hormone replacement therapy group (n = 15) received 1 mg micronized 17beta-estradiol daily sequentially combined with 5 or 10 mg dydrogesterone for 14 days of each 28-day cycle during 12 months and 2 mg 17beta-estradiol combined with 10 mg dydrogesterone thereafter for a period of 3 months. The control group (n = 15) received no treatment. Color Doppler **ultra - sonography** was used to measure the **impedance** to flow (pulsatility index) within the uterine, central retinal, and ophthalmic arteries in the 17beta-estradiol phase at baseline and after 3, 12, and 15 months. RESULTS: With respect to values in the control group, 12 months of hormone replacement therapy was associated with a significantly lower (by 39%) mean pulsatility index of the uterine artery (decrease from baseline of 25% in hormone replacement therapy group and increase of 14% in control group) and a significantly lower (by 29%) mean pulsatility index of the central retinal artery (decrease of 9% in hormone replacement therapy group and increase of 20% in control group). After 3 months this effect was already evident. During hormone replacement therapy the reductions in mean pulsatility index values of the uterine and central retinal arteries with respect to baseline were larger (both P = .002) in the women with high pretreatment pulsatility index values than in those with low pretreatment values. The baseline pulsatility index of the uterine artery correlated positively with age and with duration of amenorrhea (r= 0.42, P = .01; r= 0.48, P = .008; respectively). CONCLUSION: These results suggest that 12 months of sequentially combined hormone replacement therapy with a low dose of estradiol (1 mg) lowers arterial **impedance** in specific vascular territories. These data may help in understanding the effects of hormone replacement therapy on the cerebral circulation.

11/7/16 (Item 1 from file: 155)
DIALOG(R) File 155:MEDLINE(R)

11233773 21255504 PMID: 11356209

Particle size analysis of amalgam powder and handpiece generated specimens.

Drummond J L; Hathorn R M; Cailas M D; Karuhn R
Department of Restorative Dentistry, College of Dentistry, Chicago, IL 60612, USA. drummond@uic.edu

Dental materials : official publication of the Academy of Dental Materials (England) Jul 2001, 17 (4) p322-32, ISSN 0109-5641
Journal Code: 8508040

Contract/Grant No.: DE13254; DE; NIDCR

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

OBJECTIVES: The increasing interest in the elimination of amalgam particles from the dental waste (DW) stream, requires efficient devices to remove these particles. The major objective of this project was to perform a comparative evaluation of five basic methods of particle size analysis in

terms of the instrument's ability to quantify the size distribution of the various components within the DW stream. METHODS: The analytical techniques chosen were image analysis via scanning electron microscopy, standard wire mesh sieves, X-ray sedigraphy, laser diffraction, and electrozone analysis. The DW particle stream components were represented by amalgam powders and **handpiece** /diamond bur generated specimens of enamel; dentin, whole tooth, and condensed amalgam. RESULTS: Each analytical method quantified the examined DW particle stream components. However, X-ray sedigraphy, electrozone, and laser diffraction particle analyses provided similar results for determining particle distributions of DW samples. These three methods were able to more clearly quantify the properties of the examined powder and condensed amalgam samples. Furthermore, these methods indicated that a significant fraction of the DW stream contains particles less than 20 microm. SIGNIFICANCE: The findings of this study indicated that the electrozone method is likely to be the most effective technique for quantifying the particle size distribution in the DW particle stream. This method required a relative small volume of sample, was not affected by density, shape factors or optical properties, and measured a sufficient number of particles to provide a reliable representation of the particle size distribution curve.

Record Date Created: 20010517

15/7/1 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

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02433241 INSPEC Abstract Number: A85049739

Title: Pyroelectric properties of an H:LiNbO₃/ waveguide layer

Author(s): Zakhar'yash, T.I.; Shashkin, V.V.

Author Affiliation: Inst. of Semicond. Phys., Acad. of Sci., Novosibirsk, USSR

Journal: Zhurnal Tekhnicheskoi Fiziki vol.54, no.4 p.836-8

Publication Date: April 1984 Country of Publication: USSR

CODEN: ZTEFA3 ISSN: 0044-4642

Translated in: Soviet Physics - Technical Physics vol.29, no.4 p. 496-7

Publication Date: April 1984 Country of Publication: USA

CODEN: SPTPA3 ISSN: 0038-5662

U.S. Copyright Clearance Center Code: 0038-5662/84/040496-02\$03.40

Language: English Document Type: Journal Paper (JP)

Treatment: Experimental (X)

Abstract: The authors study how proton exchange for 5 h at $T=245$ degrees C in a benzoic acid melt alters the pyroelectric $p(x)$ and electrooptic $r(x)$ coefficients near the surface of a Z-cut, monodomain LiNbO₃/ crystal. They also investigate the effects of subsequent annealing in air on $p(x)$, where x is the distance from the surface. They **calculated** $p(x)$ from the pyroelectric charge produced when the crystal was heated by N₂/ laser pulses of length $\tau=10$ ns, energy $W=10^{-5}$ J, and repetition period 50 ms. The laser light was focused to a spot of diameter approximately $5 \cdot 10^{-2}$ cm at the center of a Cr film of thickness $d=120$ nm and area $0.1 \cdot 0.1$ cm which was grown on the Z-cut crystal by thermal vaporization in vacuum. Absorption of the laser light caused the **temperature** to **change** by $\Delta T(x, t)$. The Cr film also served as the plate of a capacitor C_x, and the voltage $U(t)$ across C_x was measured by a wideband amplifier with a FET input stage. The input **capacitance** $C=5$ pF of the FET was **shunted** by an $R=50$ m Ω resistor. The voltage was sampled by a V9-5 **transducer** and the signal was displayed by a plotter. The time resolution of the leading edge of the $U(t)$ signals was better than 50 ns. (5 Refs)

Subfile: A

?

20/7/1 (Item 1 from file: 149)

DIALOG(R)File 149:TGG Health&Wellness DB(SM)

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01148952 SUPPLIER NUMBER: 06752249 (THIS IS THE FULL TEXT)

Light-addressable potentiometric sensor for biochemical systems.

Hafeman, Dean G.; Parce, J. Wallace; McConnell, Harden M.

Science, v240, n4856, p1182(4)

May 27,

1988

TEXT:

Light-Addressable Potentiometric Sensor for Biochemical Systems
POTENTIOMETRIC MEASUREMENTS are commonly used in biophysical and biochemical studies. Examples include pH measurements with glass electrodes and redox measurements with metal electrodes. Such potentiometric measurements usually involve high input impedance measuring devices so as not to disturb the chemical equilibrium. High-impedance measurements are also used in determinations of transmembrane potentials. There is much interest in the miniaturization of devices for these measurements. A frequently studied device is the chemically sensitive field-effect transistor (CHEMFET), in which the gate region of a field-effect transistor is made sensitive to chemical events through their effect on the gate potential. The CHEMFET was first described in 1970 (1) and has been the subject of several review (2-4). Here we describe a simple alternative semiconductive structure, the light-addressable potentiometric sensor (LAPS). Brief descriptions of some aspects of this work have been presented elsewhere (5-7).

Both LAPS and CHEMFET are insulated semiconductor devices that respond to surface potentials at an electrolyte-solid interface through the effect of such potentials on electric fields within the semiconductor. Surface potentials can be established by chemically selective surfaces that acquire electrical charge in response to **changes** in chemical properties of an electrolyte. In addition, the electric fields within the semiconductor can be modulated by transmembrane potentials when the membranes are appropriately positioned relative to the insulated semiconductor surface. Attractive features of the LAPS include potentiometric stability and the ability to address different regions of the semiconductor with light rather than with fixed wires or other current paths. As discussed below, potentiometric stability implies sensitivity in biochemical determinations such as enzyme-linked immunoassays. The ability to optically address different spatial regions of a sensor surface allows multiple potentiometric measurements to be made with a single semiconductor device.

Figure 1a shows that insulated surface of a thin flat plate of n- or p-type silicon in contact with an electrolyte. The insulator separating the electrolyte from silicon is a layer of silicon oxynitride approximately 1000 [Angstrom] thick. The direct current through this insulating layer is negligible, less than a picoampere per square centimeter under the experimental conditions described below. In Fig. 1a, a potential [psi] is shown applied from the silicon plate to a Ag/AgCl controlling electrode. This controlling electrode also serves as a reference electrode in that it fixes the potential from the variable potential source to solution. The sign and magnitude of [psi] can be adjusted so as to deplete the semiconductor of majority charge carriers at the insulator interface. In this state the semiconductor produces a transient photocurrent in response to transient illumination either from above or below the silicon plate. An intensity-modulated light source, such as one of the light-emitting diodes (LEDs) A through D in Fig. 1a, gives rise to an alternating photocurrent through the indicated circuit. The amplitude of the alternating current (I) is measured with a low-impedance ac ammeter. Many configurations of

semiconductor, light source, controlling electrode, and reference electrode (if needed) are possible (Fig. 1b). The value of I depends on the applied bias potential $[\psi]$ (Fig. 2). This photocurrent varies from a minimum value of near 0 under forward bias conditions to a maximum value limited by the minimum attainable depletion layer **capacitance** under reverse bias conditions (8). Electrical circuits can be devised that sweep the bias potential with time while simultaneously multiplexing a series of LEDs that illuminate different sites on the silicon surface. We have measured the surface potential at nine different sites once every second using this approach. This time includes the time required to compute the potential $[\psi]_{.i}$, which is the potential where the slope ($dI/d[\psi]$) is maximum, and present the values of the $[\psi]_{.i}$ on a personal computer. In Fig. 1a different surface structures or chemistries, or both, at different positions are indicated schematically. Such structures include those that are sensitive to pH, redox potential, or transmembrane potential.

Previous work has shown that silicon oxynitride is pH-sensitive over a large pH range. Such measurements have been performed with the oxynitride on the gate region of an FET (9) or alternative by monitoring the voltage dependence of the **capacitance** of the semiconductor-insulator interface (10-12). This pH sensitivity is due to the proton binding capacity of Si--O and Si--NH₂ groups on the silicon oxynitride surface (13). Figure 3 shows that the pH response over a range from 2 to 12 of the LAPS device at an oxynitride site is Nernstian.

Redox potential measurements can be made by depositing pads of metallic gold 5000 [angstroms] thick over the insulating silicon oxynitride coating on silicon plates. When the electrolyte solution contains a redox pair such as ferricyanide-ferrocyanide, the potential of the gold is determined by the ratio of the concentrations of these two species, in accordance with the Nernst equation. Thus intensity-modulated illumination of a region of the semiconductor beneath the gold pad produces an alternating photocurrent similar to that observed with the pH sensing device. In this case, however, $[\psi]_{.i}$ responds to **changes** in redox potential of the electrolyte.

When a membrane is interposed between the controlling-reference electrode and the silicon, a transmembrane potential will add in series with $[\psi]$ and thus affect the photoresponse. Transmembrane potentials are also often Nernstian and can be conveniently considered along with pH and redox. Figure 3 shows a Nernstian potential response arising from potassium ions when a valinomycin-containing membrane on top of an oxynitride-coated silicon plate is placed in contact with solutions containing various concentrations of potassium chloride.

Figure 4 illustrates the response that is observed when two chemically distinct regions are illuminated simultaneously with a single intensity-modulated light source. One region is a silicon oxynitride surface and the other is a gold pad deposited on top of oxynitride. The intensity-modulated light beam is expanded in diameter so that the illuminated area is approximately twice as large as the gold spot. Upon sweeping the value of $[\psi]$, two inflections in the I versus [angstroms] curve are seen. The potential at the inflection point seen near -0.1 V is responsive to pH. The potential at the inflection point seen near -0.9 V is responsive to redox potential. When the solution contains a redox buffer, such as a mixture of ferri- and ferrocyanide, the potential from the gold to solution is fixed, and **changes** in the photo-response from the oxynitride region can be used to measure **changes** in the pH of the solution. The signal from under the gold-covered area acts as a reference. When the solution is buffered with respect to pH and a redox chemical reaction takes place, the potential from the gold to solution will **change**. This **change** in solution redox potential can be measured by using the signal from the oxynitride region as a reference. This internal reference mechanism allows for pH and redox measurements to be carried out simultaneously at different illuminated sites. In this case the controlling

electrode can be simplified (for example, a piece of wire in contact with solution) since it need not act as a reference.

An area of application of the LAPS device is in the high-sensitivity measurements of enzyme activity as used, for example, in enzyme-linked immunoassays. Appropriate enzymes are those that produce pH **changes** or **changes** in redox potential. For simplicity we equate sensitivity with the number of enzymes that can be detected with quantitative accuracy, as this is often the criterion of practical interest. Two features of the LAPS device contribute to high sensitivity. First, the device has high potentiometric stability. A drift in surface potential of less than 0.1 [mV] per second can be achieved, which corresponds to 1.7 micro pH units per second. Second, when the enzymes to be detected are trapped or immobilized near the semiconductor surface, the buffering effect of the electrolyte can be minimized by reducing the volume of the solution in contact with the insulated semiconductors surface. Figure 1b illustrates a cell designed to provide a small fluid volume in contact with the insulator surface. The sensitivity of a small volume system of this sort to detect an enzyme that produces a pH **change** following substrate turnover can be **calculated** as follows. Let the enzyme turnover number to produce or consume protons be n (with units of moles of protons per second per mole of enzyme), and let e be the number of moles of enzyme in the sample chamber. The rate of pH **change** of solution is $d(\text{pH})/dt = en/(Bv + b_s)$ (1) where B is the volumetric buffer capacity of the electrolyte, v is the volume of the solution, b is surface buffer capacity of the chamber surfaces, and s is the surface area of the chamber in contact with the electrolyte. The volumetric buffer capacity of the solution is $B = 2.303 [a - (a.\text{sup.2}/c)]$ (2) where c is the molar concentration of the buffer and a is the molar concentration of the acidic species of the buffer pair. An equivalent expression for b is obtained in which the concentrations of buffer species are given in terms of surface concentration or in units of moles per square centimeter. According to Eq. 1, the sensitivity to detect a given number of enzymes from a pH **change** can be increased by decreasing the volume or volumetric buffer capacity. Decreasing the volumetric buffer capacity by reducing the buffer concentration below 1 mM or adjusting the initial solution pH to be far from the buffer pK is generally not practical, as substantial pH drifts will occur due to equilibration of atmospheric CO_2 with solution. For a fixed buffer concentration in the electrolyte, the rate of pH **change** can be increased by reducing the electrolyte volume v until the surface buffer capacity of the chamber becomes dominant, as indicated in Eq. 1. The data given in Fig. 5 illustrate the determination of surface buffer capacity of a sample cell. In this experiment, the sample volume is estimated to be of the order of 1 nL, and the surface buffer is about 1 pmol, which limits the sensitivity according to Eq. 1; about 10,000 molecules of an active enzyme such as urease, $n = 5,870$ (15), should give a rate of pH **change** significantly above the background drift stated above.

Enzyme-linked redox chemistry can be used for a number of biochemical and immunochemical assays (16-18). The theoretical sensitivity for a redox measurement is limited by the metal-electrolyte interfacial **capacitance**, which is of the order of 20 [mF] cm.⁻². The **capacitance** must be charged by exchange of electrons to or from the redox species. The requirement for charging this interfacial **capacitance** in order to generate a **change** in surface potential determines the ultimate theoretical sensitivity of this sensor for the measurement of **changes** in both redox potential and pH.

The experiments described in this report have all been performed with an illumination area of about 1 mm.². For the silicon used, the minority-carrier diffusion length is on the order of 1 mm, which means that the measured photocurrent is obtained from an area of approximately 1 mm.² even if the surface chemistry of interest is confined to a smaller

area. High spatial resolution can in principle be achieved in several ways. The silicon can be masked, for example, with a thick insulating layer, so as to allow only a very small area of the silicon oxynitride surface to come in contact with the aqueous medium. Silicon can be doped with gold to reduce the minority carrier lifetime and thus reduce diffusion lengths. The frequency of modulation of the illumination source can be increased. Phase-sensitive detection of the photocurrent will also increase spatial resolution.

For the purpose of discussing signal-to-noise ratio in the LAPS device, the signal is defined as the slope of the midpoint region of the photocurrent versus potential curve (Fig. 2), and noise is the time-dependent variation of photocurrent amplitude at that potential. The signal, or slope of the photocurrent curve, is a function of the absolute amplitude of the photocurrent and the width of the curve given by the first derivative of photocurrent versus potential. Typical full-widths at half-height for first derivative photoresponse curves are approximately 0.1 V at low photocurrents. The photocurrent increases linearly with increasing illumination intensity up to the point where the alternating photopotential generated across the insulator approaches the width of the photoresponse curve. At this point, a further increase in illumination intensity results in an increase in width of the photoresponse curve and thus tends to negate the increase in signal due to an increase in photocurrent. Therefore the optimum photocurrent I is approximately by the equation I [is approx.] EC/t (3) where E is the width of the photoresponse curve (0.1 V), C is the **capacitance** of the oxynitride insulator (0.05 $[\mu]F$ cm.^{sup.-2}), and t is the illumination time per modulation cycle (0.05 msec for 10-kHz square-wave modulation). This optimum photocurrent is [is approx.] 1 $[\mu]A$ mm.^{sup.-2}. In general, to optimize signal-to-noise ratio the input impedance of the photocurrent amplifier is matched to the sensor impedance. In the case of the LAPS, however, this strategy results in cross talk between various chemistry sites. To minimize this cross talk, most of the photocurrent must flow into the input amplifier. This is accomplished by making the input impedance of the amplifier small with respect to the sensor impedance. In this configuration, the major source of noise is the equivalent input voltage noise of the first operational amplifier (current to voltage converter). Because the sensor acts as a **shunting** capacitor from its input to ground, the noise is essentially proportional to frequency in the frequency range of interest (about 10 kHz). Varying the illumination modulation frequency in this range does not alter significantly the signal-to-noise ratio, as the signal also is proportional to frequency (Eq. 3).

Two features, the planar surface of the device and the ease with which multiplicity can be achieved by addressing discrete sensing sites with light, make the device described in this report an ideal candidate for use as a signal **transducer** in biosensor. In biosensor, the most difficult component to control is the biological or biochemical component. Enzymatic reactions are **temperature**-sensitive, proteins tend to denature and become inactive as a function of time and their environmental history, and even at the level of manufacturing, different preparations of the same biological material often result in different levels of biological activity. For these reasons a robust biosensor should have a variety of "on-board" biochemical calibrators. The light-addressable aspect of the LAPS makes sensing a multiplicity of on-board calibrators a relatively straightforward task. To date we have measured the kinetics of reactions run simultaneously at as many as 23 sites on a single sensor with only two electrical leads from the controlling electronics to the sensor. Furthermore, by partially covering the surface with metal, separate pH and redox measurements can be made at each site to control for potentiometric stability of the system if one or the other of these solution parameters is made stable at each site by an appropriate buffer. Another feature of the LAPS that lends convenience to the fabrication of biosensors is its planar surface. The flat polished

sensing surface has two significant attributes. First, it is easy to create fluid seals to maintain the aqueous solution only in contact with the insulator surface. For high-sensitivity assays, microscopic fluid leaks between the aqueous compartment and the electrical contact on the back side of the semiconductor can result in substantial potentiometric drifts. For some sensor configurations, a resistive path of 100 gigaohms through the fluid leak into a small volume can result in substantial drifts. Second, the flat surface makes it possible to generate very small, defined aqueous volumes. These volumes can be as small as a nanoliter. The advantage of using small volumes for performing high-sensitivity assays is discussed above. We have detected one attomole (600,000) of enzyme molecules adsorbed to filter paper 100 μm thick. The time required to make this determination was approximately 2 minutes.

The principal advantage of biosensor, such as the one described here, is the ease with which miniaturization can be achieved. This miniaturization in turn facilitates multiplicity and high sensitivity. Specific applications of this methodology to enzyme-linked immunochemical assays for therapeutic drugs, hormones, and bacterial pathogens will be given elsewhere.

CAPTIONS: Light-addressable semiconductor sensors. (chart); Alternating photocurrent as a function of bias potential. (graph); Nernstian responses to electrolyte composition. (graph); Biphasic response for a binary sensing surface. (graph); Determination of sensor-surface buffer capacity. (graph)

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05617485 E.I. No: EIP00085270755

Title: Calculating multimode generation in BAW transducers and resonators

Author: Adler, Eric L.

Corporate Source: McGill Univ, Montreal, Que, Can

Conference Title: 1999 IEEE Ultrasonics Symposium

Conference Location: Caesars Tahoe, NV, USA Conference Date:
19991017-19991020

Sponsor: Ultrasonics; Ferroelectrics; Frequency Control Society

E.I. Conference No.: 57030

Source: Proceedings of the IEEE Ultrasonics Symposium v 2 1999. IEEE,
Piscataway, NJ, USA. p 877-881

Publication Year: 1999

CODEN: PIEUEZ ISSN: 1051-0117

Language: English

Document Type: CA; (Conference Article) Treatment: A; (Applications); T
; (Theoretical); X; (Experimental)

Journal Announcement: 0009W2

Abstract: A matrix method for **calculating** the frequency responses for
the excitation amplitudes of the three acoustic modes in **transducer**
-substrate geometries and in resonators is presented. The effectiveness of
the method **is** illustrated for typical resonator and **transducer**
structures. 3 Refs.

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L12 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:157261 HCAPLUS
TITLE: Acoustic interferometry method and device
INVENTOR(S): Wenman, Richard A.
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002016924	A1	20020228	WO 2001-US26211	20010822
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001088345	A5	20020304	AU 2001-88345	20010822
PRIORITY APPLN. INFO.: US 2000-227081P P 20000822				
WO 2001-US26211 W 20010822				
AB A standing wave interferometry analysis method and sensor (20) for characterizing physical properties of fluids, suspensions and emulsions at ultrasonic frequencies is disclosed. Standing wave features, peaks and valleys are created by continuously changing the ultrasonic frequency by small intervals, between the two ultrasonic transducers (22, 24), which define a sensing zone (30). The transducers (22, 24) are located a known distance apart, for operating in their near field region. Standing wave features are analyzed for frequency location, amplitude and frequency width. The temperature is recorded at each frequency interval. Data from one or more standing wave features are used for calculations of viscosity, density, particle concentration and sound velocity. More accurate particle concentration data is obtained by repetitively scanning the same standing wave peak and measuring resultant frequency shift, caused by particle concentration at the receiving transducer (24). The method is applicable to sub-micrometer particles and measuring the carbon concentration in used engine oil.				
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT				

L12 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:224219 HCAPLUS
TITLE: Liquid management device and method. [Machine Translation].
INVENTOR(S): Nakamura, Hiroshi; Nagata, Ryohei
PATENT ASSIGNEE(S): Dainippon Printing Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2000097849 A2 20000407 JP 1998-265127 19980918
AB [Machine Translation of Descriptors]. The time-dependent **change** like the etchant easily grasps the **change** extent of the liquid which appears as **change** of optical quality, as the numeric data, it makes driving which is not wasteful possible. The **transducer** has 40 which utilizes surface plasmon resonance and thermocouple 50 for liquid accommodation component 21, **calculates** the resonance angle (resonance angular smallest point) of etchant 30 with operational expedient CPU on the basis of the information from **transducer**, at the same time, does **temperature** compensation, presumes the degradation (time-dependent **change**) extent of etchant 30 with that.

L12 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1974:455702 HCAPLUS

DOCUMENT NUMBER: 81:55702

TITLE: UHF [ultrahigh frequency] and microwave frequency acoustic surface wave delay lines. Design

AUTHOR(S): Slobodnik, Andrew J., Jr.

CORPORATE SOURCE: Air Force Cambridge Res. Lab., L G Hanscom Field, Bedford, Mass., USA

SOURCE: U. S. Nat. Tech. Inform. Serv., AD Rep. (1973), No. 775984/8GA, 91 pp. Avail.: NTIS
From: Govt. Rep. Announce. (U.S.) 1974, 74(10), 100
CODEN: XADRCH

DOCUMENT TYPE: Report

LANGUAGE: English

AB Detailed comprehensive procedures and theories are provided for the optimum design of ultrahigh-frequency and microwave frequency acoustic surface wave delay lines consisting of 2 identical, periodic, uniform width, interdigital **transducers**. The circuit model used to characterize device performance as a function of frequency includes a lossy tuning inductor, finite resistivity **transducer** fingers, and parasitic **shunt capacitance**. Surface wave propagation loss is also included.

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0 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:793552 HCAPLUS
DOCUMENT NUMBER: 137:315617
TITLE: Structure and process for continuously treating dental
unit water
INVENTOR(S): Downs, Bradley J.
PATENT ASSIGNEE(S): USA
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002081378	A1	20021017	WO 2002-US10960	20020409
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: US 2001-282376P P 20010409

AB The invention pertains generally to dental units (e.g., a high-speed dental **handpiece**, an **ultrasonic** scaler and an air/water syringe) connected to a water supply that provides coolant and rinse water to the dental units. More particularly the invention pertains to a dental unit using water that is continuously treated with a water treatment agent, such as microbiocidal silver ions. The treated dental unit water is supplied to the dental units via dental unit waterlines.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:882280 HCAPLUS
TITLE: Method for detecting transverse mode vibrations in an **ultrasonic hand piece** /blade
INVENTOR(S): Giordano, James R.; Stulen, Foster B.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002170357	A1	20021121	US 2001-861870	20010521
AB	A method for detecting transverse mode vibrations in an ultrasonic hand piece /blade for determining the existence of unwanted vibration in the hand piece /blade. A tracking filter centered at the drive frequency of the generator, is used to monitor the drive frequency of the ultrasonic generator and attenuate the drive signal when it exceeds a predetermined level. The tracking filter has a wide pass band. Alternatively, a tracking filter			

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having a pass band which is divided into several regions is used to avoid other longitudinal resonances, such as a resonance at a second harmonic, or other spectral features that would otherwise detract from the tracking accuracy of the filter.

L20 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:502489 HCAPLUS
TITLE: Method of manufacturing an aspirating tool
INVENTOR(S): Stoddard, Robert; Reschke, Arlan James
PATENT ASSIGNEE(S): Sherwood Services Ag, Switz.
SOURCE: U.S., 11 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6256859	B1	20010710	US 1999-298125	19990423

PRIORITY APPLN. INFO.: US 1998-101703P P 19980925

AB An **ultrasonic** surgical apparatus for fragmenting and aspirating tissue is disclosed. The apparatus includes a **handpiece** which encloses a transducer, an aspirating tool, and a connector body connecting the aspirating tool and the transducer. The aspirating tool includes a elongated boy having a centrally located throughbore, a hexagon engagement portion, a threaded proximal end and a distal tip. Methods of manufacturing aspirating tools having small and large diameter throughbores adapted for use with a common **handpiece** are also disclosed.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:131262 HCAPLUS
TITLE: Method and apparatus for **ultrasonic** removal of bone cement material
INVENTOR(S): Vandewalle, Mark V.; Golden, Dean R.
PATENT ASSIGNEE(S): Biomet, Inc., USA
SOURCE: U.S., 7 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6190392	B1	20010220	US 2000-497046	20000202

PRIORITY APPLN. INFO.: US 1999-118454P P 19990203

AB A method and apparatus for **ultrasonic** removal of bone cement material includes an auger tool and an **ultrasonic** transducer/**hand piece**. The auger tool includes a spiral helical flute which extends about a cylindrical body and a quick connect mechanism for coupling the auger tool to the **ultrasonic** transducer/**hand piece**. Upon energizing the **hand piece**, bone cement is heated to a flowing mass so that the flowing mass of bone cement may flow about the cylindrical body and guided, via the spiral helical flute 90. This provides a method and apparatus for easily and quickly removing bone cement material during a revision type orthopedic surgical procedure.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:502907 HCAPLUS

DOCUMENT NUMBER: 135:262196

TITLE: The use of **ultrasound**-activated Al₂O₃ powder for direct adjustments of the fit of partial crowns on the prepared toothAUTHOR(S): Salomon-Sieweke, U.; Sieweke, M.; Stachniss, V.
CORPORATE SOURCE: Med. Zentrum f. Zahn-, Mund- und Kieferheilkunde, Abt. Zahnerhaltung, Marburg, Germany

SOURCE: Deutsche Zahnärztliche Zeitschrift (2001), 56(5), 298-301

CODEN: DZZEA7; ISSN: 0012-1029

PUBLISHER: Carl Hanser Verlag

DOCUMENT TYPE: Journal

LANGUAGE: German

AB The objective of this study was to find out, if it is possible to use a cast partial crown to directly adjust the fit on the prepd. tooth. Extd. premolar (n = 2) and molar (n = 5) teeth were prepd. for partial crown restorations. After impression taking a master die was made, on which the partial crowns were waxed up. Degulor M was used to cast the crowns. The castings were then mounted on an **ultrasonic hand-piece**. A suspension of Al₂O₃ powder and glycerin gel was applied between casting and tooth, and the casting vibrating at 25 kHz was seated on the tooth using manual guidance. Depending on the initial fit of the casting this procedure was repeated several times. The fit achieved with each step was recorded in silicon. Once a satisfactory fit was achieved, the silicone records and the cemented partial crowns were embedded in methacrylate and sectioned in a mesio-distal direction. The width of the luting space was measured at 8 points under the microscope. Prior to the adjustment procedure, the width varied between 71 and 798 .mu.m. Depending on the initial fit of the castings, up to 7 adjustment steps were required. After adjustment, the width of the luting space varied between 63 and 132 .mu.m, and between 67 and 132 .mu.m after cementation. The results show that it is possible to improve the fit of gold castings with the aid of **ultrasound**-activated Al₂O₃ powder between the prepd. tooth and the casting. Neither the tooth enamel, nor the restoration margins were damaged by the procedure.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:120507 HCAPLUS

TITLE: **Ultrasonic handpiece** tuning and controlling device

INVENTOR(S): Boukhny, Mikhail

PATENT ASSIGNEE(S): Alcon Laboratories, Inc., USA

SOURCE: U.S., 8 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6028387	A	20000222	US 1998-106481	19980629

AB An apparatus for tuning and controlling an **ultrasonic handpiece** having a programmable broad spectrum source, a torsional single frequency source and a longitudinal single frequency source that generate a drive signal for an **ultrasonic handpiece**

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and a digital signal processor for analyzing a response signal generated by the **handpiece** in response to the drive signal and generating an adjusting signal for adjusting the torsional single frequency source and the longitudinal single frequency source.

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:105334 HCAPLUS
TITLE: Teletherapeutic unit. [Machine Translation].
INVENTOR(S): Asami, Norizumi; Sekiguchi, Haruo
PATENT ASSIGNEE(S): [NAME NOT TRANSLATED], Japan; [NAME NOT TRANSLATED]
SOURCE: Jpn. Kokai Tokyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000041998	A2	20000215	JP 1998-247687	19980730

AB [Machine Translation of Descriptors]. Operativity and handling and others in the , cooling or warms, the affected part dry and the like which is made the remedy plug can make with the compact, be able to adjust mounting angle, on for the skin of every section of the affected part with , dew point of the air which is made to compress at times to be low the do, efficiently with the vortex tube cold * the warm air generate, the purity of the air raise, the oil content lower, the laser beam which removes the solid particle as much as possible, the laser female and the **ultrasound** female, the vibration kneader and and so on install the teletherapeutic unit et cetera offer. In **hand piece** such as laser beam 18 retention metallic parts through 14 and 15, with screw stopping 16 and the like to install vortex tube 9, in the vortex tube to compress boost with the liq. air or the compressor of scroll compression of oil free, after drying the air which this compresses boosts with heat less gong supplying, cold * generates the warm air, it is an electromagnetic valve and through with the filter, a teletherapeutic unit et cetera which piping 8 connected facilities is done.

L20 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:755128 HCAPLUS
TITLE: Dentale mechanism for the treatment of fabrics with preferably high frequency mechanical oscillations [Machine Translation].
INVENTOR(S): Hahn, Rainer; Grotz, Uwe; Prager, Ulrich
PATENT ASSIGNEE(S): Duerr Dental Gmbh & Co Kg, Germany; Hahn, Rainer,
SOURCE: Ger. Offen.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19916153	A1	20001026	DE 1999-19916153	19990411

AB [Machine Translation of Descriptors]. It is suggested manufacturing the work liquid for an **ultrasonic hand piece** directly before use automatically by the fact that one integrates a mischeinrichtung, to which by way of dosing pumps (184, 186, 188) into the **ultrasonic hand piece** of (10) at least one

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concentrate from a storage vessel (194) and water is supplied.
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:518381 HCAPLUS
TITLE: Control system for a phacoemulsification
handpiece
INVENTOR(S): Boukhny, Mikhail; Salehi, Ahmad
PATENT ASSIGNEE(S): Alcon Laboratories, Inc., USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5938677	A	19990817	US 1997-950162	19971015

AB A system and method for tuning and controlling **ultrasonic**
handpieces by varying the frequency of the drive signal that is fed to the
handpiece by a discrete dither increment. A digital signal
processor may be used to measure the response of the **handpiece**
to the varying drive signal and compare these responses to determine the
probable value of the actual series resonance. The output of the digital
signal processor is used to generate control parameters embodied within an
appropriate control signal, which is fed to the source of the drive signal
in order to alter aspects of the drive signal.

L20 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:330988 HCAPLUS
DOCUMENT NUMBER: 131:9690
TITLE: Dental water storage tank having **ultrasonic**
INVENTOR(S): Ohtani, Norio
PATENT ASSIGNEE(S): Osada Chuo Kenkyusho K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11137579	A2	19990525	JP 1997-307420	19971110

AB The water tank, which supply activated and disinfected warm water for
rinsing the mouth, cooling the site cut with an air-turbine
handpiece, etc., contains a **ultrasonic** vibrator and
optionally an O3 generator inside. The tank may addnl. contain an UV lamp
and a TiO2 film formed on the inner wall of the tank. The tank preferably
has a filter comprising 0.1 .mu.m-pore fiber tubes at the site to be
connected to a water tap. The tank is prevented from growth of bacteria
and fungi in water during the period when the tank is not used.

=>

Set	Items	Description
S1	6	E3,E7
S2	16	E3,E4
S3	17	E3,E4
S4	11	E3,E9,E10
S5	20	AU='STULEN F':AU='STULEN FOSTER B'
S6	50	S1:S5
S7	79306	CAPACITANCE?
S8	107415	TRANSDUCE?
S9	1153723	TEMPERATUR?
S10	13	S6 AND S7:S9
S11	201	S7 AND S8 AND S9
S12	200	S11 NOT S6
S13	79208	IMPEDANCE OR IMPEDENCE
S14	10	S12 AND S13
S15	8491	CALCULAT?(3N) (CHANGE? OR DELTA?)
S16	0	S12 AND S15

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File 347:JAPIO Oct 1976-2002/Jul (Updated 021104)

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File 350:Derwent WPIX 1963-2002/UD,UM &UP=200277

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File 371:French Patents 1961-2002/BOPI 200209

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Set	Items	Description
S1	2	AU='KRAMER KENNETH S'
S2	11	E3,E4
S3	14	E2,E3
S4	15	AU='HOUSER KEVIN':AU='HOUSER KEVIN LEE'
S5	9	AU='STULEN FASTER B':AU='STULEN FOSTER B'
S6	37	S1:S5
S7	146452	CAPACIT?
S8	10	S6 AND S7
S9	24124	TRANSDUCE?
S10	9	S8 AND S9
S11	319265	TEMPERATURE? ?
S12	8	S10 AND S11
S13	207	S7(S) S9(S) S11
S14	24720	IMPEDANCE OR IMPEDENCE
S15	7701	SHUNT?
S16	0	S13() S14
S17	3	S13(S) S15
S18	16448	(CALCULAT? OR MEASURE?) (3N) (CHANGE? OR DELTA?)
S19	9	S13(S) S18
S20	11	S17 OR S19
S21	7	S12 NOT S20

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File 348:EUROPEAN PATENTS 1978-2002/Nov W04

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Set	Items	Description
S1	202327	SHUNT?
S2	180201	CAPACITANCE?
S3	4536787	CALCULAT?
S4	1024827	TRANSDUC?
S5	6690444	TEMPERATUR?
S6	9842	S1(S) (S2:S4)
S7	961	S5 AND S6
S8	9478937	CHANG? OR DELTA
S9	239	S7(S) S8
S10	168301	TRANSDUCER
S11	170	S2(S) S3(S) S10
S12	2	S5 AND S8 AND S11
S13	1	S1 AND S11
S14	2	S12 OR S13
S15	2	RD (unique items)
S16	212467	S8(4N) S5
S17	2	S11 AND S16
S18	0	S17 NOT S15
S19	2	S1 AND S2 AND S3 AND S5 AND S8 AND S10
S20	1	S19 NOT S15

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(c)2002 Amer Med Assn -FARS/DARS apply
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File 92:IHS Intl.Stds.& Specs. 1999/Nov
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File 187:F-D-C Reports 1987-2002/Nov W4
(c) 2002 F-D-C Reports Inc.
File 188:Health Devices Sourcebook 2002
ECRI (A nonprofit agency)
File 198:Health Devices Alerts(R) 1977-2002/Dec W1
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(c) 2002 Contains copyrighted material
File 239:Mathsci 1940-2002/Jan
(c) 2002 American Mathematical Society
File 241:Elec. Power DB 1972-1999Jan
(c) 1999 Electric Power Research Inst.Inc
File 647:CMP Computer Fulltext 1988-2002/Nov W1
(c) 2002 CMP Media, LLC

Set	Items	Description
S1	661978	ULTRASON? OR ULTRASOUND?
S2	2314	ULTRA()SON? OR ULTRA()SOUND?
S3	662940	S1 OR S2
S4	1979	HAND()PIECE OR HANDPIECE
S5	216092	IMPEDANCE? OR IMPEDENCE?
S6	231	S3 AND S4
S7	0	S6 AND S5
S8	3	S4 AND S5
S9	19	S2 AND S5
S10	22	S8 OR S9
S11	16	RD (unique items)
S12	3	S8
S13	3	RD (unique items)

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~~File 155:MEDLINE(R) 1966-2002/Nov W3~~

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